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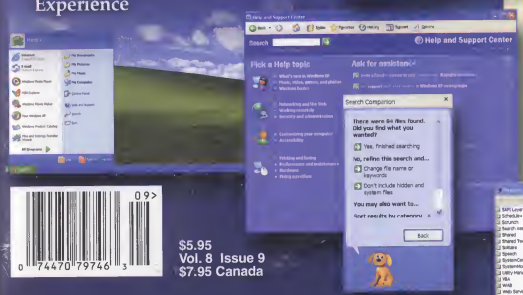
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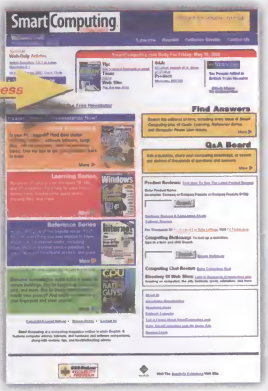

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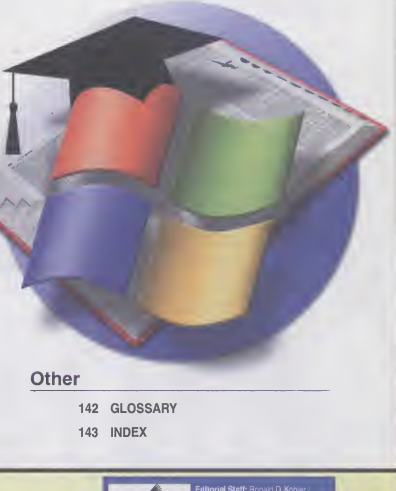

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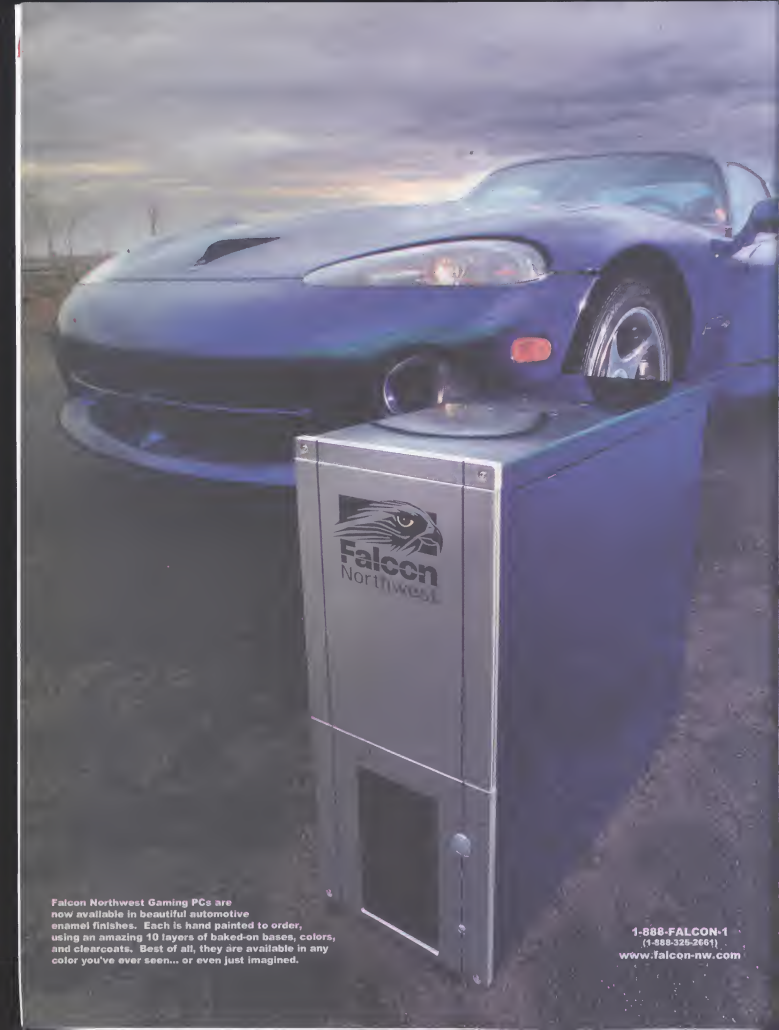

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Top 12 Desktop Customizations

A Dozen Ways To Make Yourself At Home With Windows XP

There's more to Windows XP than meets the eye. Indeed, to get the best WinXP experience, you must look past the OS' (operating system's) attention-grabbing interface and explore the Desktop's advanced features and functionality. Only by delving into control panels, context menus, dialog boxes, and the system **Registry** (a directory of user preferences and system settings) can you mold the latest version of Windows to meet all your needs.

(NOTE: Some of our tips require Registry tweaks, so be extremely careful while following our directions. Whenever you plan to edit the Registry or any important system files, you should always back them up first. One mistake can generate dire consequences. If you don't feel comfortable editing the Registry, you should consider skipping any tips that relate to directly editing Registry settings. For more information about backing up the Registry, see "Protect Yourself" on page 32.)

1 Modify the boot screen. The best place to start anything is at the beginning. For those using WinXP, the beginning is the **boot screen** (an image that appears on-screen while the OS launches). You can modify this screen so that it presents an image of your choosing rather than the default WinXP logo and loading meter. All you need to do is replace the existing Ntoskrnl.exe file with a customized version that includes pointers to the new boot screen.

First, back up your current Ntoskrnl.exe file as a precautionary measure in case anything goes wrong. Double-click My Computer, open the **Windows drive** (the drive on which WinXP is installed), and burrow through the Windows and System32 folders until you find the Ntoskrnl.exe file. Right-click this file and select Copy from the context menu to create the backup file. To find a place to store it, navigate the My Computer window to locate a secure drive or folder. Right-click the selected drive or folder and select Paste from the context menu. The backup copy of the Ntoskrnl.exe file will appear in the selected drive or folder.

With the Ntoskrnl.exe file safely backed up, it's time to select a boot screen. ThemeXP (http://www.themexp.org) has a catalog of nearly 400 boot screens. Other sites that offer downloadable boot screens include Belchfire.net (http://www.belchfire.net/modules.php?name=XP_Themes), XP-erience.org (http://www.xp-erience.org), and ScreensAndThemes.com (http://www.screensandthemes.com/xp-boot). Visit one of these sites and download a boot screen you like, free of charge.

When the download is complete, locate the file on your PC. Note that the boot screen file often transmits with a .ZIP extension that you must decompress on your PC. The easiest way to decompress a file is to right-click it and choose Extract All. The on-screen instructions will guide you through the process of decompressing the file and its contents, including an Ntoskrnl.exe file and all associated images, on your PC. Note that you can extract the files to any folder except the System32 folder (in the Windows folder) on the Windows drive.

After the extraction finishes, you should reboot the computer into Safe Mode. Restart the computer while holding down the F8 key to do so. When the computer restarts, open My Computer and locate the recently extracted Ntoskrnl.exe file. Copy and paste it into the System32 folder on the Windows drive. Verify that you want to overwrite the existing file, wait for the process to finish, and reboot the computer into Normal mode. The new boot screen should appear on-screen as WinXP starts.

You can delete the backup copy of the Ntoskrnl.exe file as soon as you're satisfied with the performance of the new boot screen, but you should not move or delete the extracted files associated with the boot screen.

2 Change the logon screen. Just as you customized the boot screen, so too can you customize the WinXP logon screen. This time, you need to replace the Logonui.exe file in the System32 folder. Create a backup copy of this file on your hard drive and visit the ThemeXP or Belchfire.net sites to view hundreds of downloadable logon screen images. Find one you like and download it to your PC. Decompress the file to access its contents (as with the boot screen images, the downloadable logon screen images come as files with the .ZIP extension), which should include a Logonui.exe file and associated image files. Reboot the computer into Safe Mode and, after your system starts up, move the extracted Logonui.exe file to the System32 folder. Verify that you want to replace the old file and then restart the PC.

After the computer restarts, the new logon screen will appear. Use the new logon screen in the same way that you used the old one: Select a user, enter a password, and log in. Note that the same logon screen also appears momentarily when you shut down WinXP.

3 Customize colors of buttons, title bars, window borders, etc. Someone at Microsoft must really like blue. Various shades of that color, along with a liberal serving of gray, have dominated the Windows Desktop for years. Fortunately, you can change that.

Right-click the Desktop and select Properties from the context menu. In the resulting dialog box, choose the Appearance tab. From the Windows And Buttons drop-down menu, select Windows Classic Style (because only the Windows Classic Style option accommodates

color customization). Click the Advanced button to display the Advanced Appearance dialog box. When you open the Item drop-down menu, you'll see a list of more than 15 Desktop elements. You can modify the color of each one.

As an example, we'll change the color of the Active Window Border. Highlight its entry in the Item drop-down menu and click the Color 1 drop-down menu to open a palette of 20 default color selections. Novice users might only select one of these colors and be satisfied, but advanced users know that they can get a better selection by clicking the palette's Other button. The resulting Color dialog box contains a larger palette with options for more than 16 million colors. Click anywhere on the rainbow-like palette on the right to select a color. Adjust the values in the Red, Green, and Blue fields to fine-tune your selection; any number between 0 and 255 will work.

When you've settled on a color you like, click OK. If you find a color you really like and want to use it for several elements, you should click the Add To Custom Colors button before clicking OK. The Custom Colors area is for 16 shades that you personally select for use in WinXP. You can access the Color dialog box and click the desired color from the Custom Colors area to incorporate these shades into the Desktop. Repeat the process for all the Desktop elements. Note that some elements let you choose multiple colors to create a fade effect or set the color of text.

4 Adjust the font, size, and style of title bars and menus. You also can modify the appearance of the text that appears in title bars, menus, and other Desktop elements from the Advanced Appearance dialog box. Simply select an element in the Item drop-down menu and review the customization options available. If you choose the Active Title Bar, for instance, you will have the option of changing the font, text size, and text color. The Font, Size, and Color fields present a list of viable settings; all you have to do is pick one for each. Click the corresponding icons to set the text to appear in bold or italics. When you're happy with your selection (a preview window lets you see what the customized text looks like), click OK.

5 Replace default Start menu icons with custom icons. When Microsoft's engineers designed the WinXP interface, they moved most of the Desktop icons to the Start menu. Whether you leave the icons on the Start menu or move them back to the Desktop (all it takes is a simple drag-and-drop action for each), you should know how to replace them with customized icons that are more to your liking. After all, it's not that complicated.

First, you need to have the replacement icons saved as files with .ICO extensions somewhere on your system. You can find replacement icons all over the Internet, including Desktopicons.co.uk (free; http://www.desktopicons.co.uk) and DeskStop.Org (free; http://www.deskstop.org). Use any of the popular search engines and the keywords "Windows icons" to find even more sites offering free icons.

Changing the appearance of the Title bar text may seem like a minor alteration, but the effect it has on your Desktop is considerable.

After downloading the icons, we recommend storing them in a central location on the hard drive. For instance, create an Icons folder by opening My Computer and double-clicking the Windows drive. Open the File menu and select New, Folder. When the folder appears, type icons and press ENTER.

Next, you should open the Display Properties dialog box and choose the Desktop tab. Click the Customize Desktop button and, on the General tab of the resulting dialog box, you'll see a menu of the five primary Desktop icons: My Computer, My Documents, My Network Places, Recycle Bin (full), and Recycle Bin (empty). Highlight one and click the Change Icon button. In the Change Icon dialog box, click the Browse button and locate the newly established Icons folder on the Windows drive. Select the desired icon from the contents of this folder and click the Open button. Click OK in the Change Icon dialog box to return to the Desktop Items dialog box. Repeat the procedure for each of the remaining four icons. When you finish, click OK.

6 Produce a screen saver slideshow. At one point in time, screen savers protected the computer screen from **burn-in** (a condition that occurred when an unchanged image remained on-screen for an extended period, thereby leaving a permanent impression of the image on-screen). Today's monitors are not susceptible to burn-in, but screen savers are just as popular as they've ever been. In light of this, one of the best advanced features of WinXP is the My Pictures Slideshow, which lets you use a revolving display of selected images as your screen saver. Here's how to set it up.

Move all of your favorite digital images to one folder on the Windows drive. Open the Display Properties dialog box and choose the Screen Saver tab. In the Screen Saver drop-down menu, select My Pictures Slideshow and click the Settings button. In the My Pictures Screen Saver Options dialog box, click the Browse button to locate the folder where you stored your pictures. Highlight the folder in the resulting Browse For Folder dialog box and click OK to return to the My Pictures Screen Saver Options dialog box.

Review the screen saver settings and set them according to your preferences. Click OK to you're your settings. Then, when you return to the Display Properties dialog box, click OK to activate the screen saver.

7 Create a theme. You can formalize your customized Desktop settings by combining them into a personalized **theme** (a collection of Desktop preferences). Simply set the background, colors, icons, and other Desktop settings you want, and then open the Display Properties dialog box and choose the Themes tab. Click the Save As button to access the Save As dialog box. Select a location where you want to save the theme; the default location is X:\WINDOWS\RESOURCES\THEMES on the Windows drive (with *X* representing the letter assigned to that drive). Then type a name for the theme in the File Name field. Click the Save button to save the theme and return to the Display Properties dialog box. Click OK to activate the theme on your Desktop. If you wish, you can create several customized themes.

Microsoft Plus! For Windows XP ($29.95; http://www.microsoft.com/windows/plus) offers several preconfigured themes you can import and use on your PC. You can buy the software directly from Microsoft through its

online shop at http://shop.microsoft.com or by calling (888) 218-5617 or (716) 871-2915.

8 Bring Web content to the Desktop.

Remember the Active Desktop? This feature, which debuted with Windows 98, let users display live Internet content on-screen. The problem was that few users had broadband Internet connections at the time, and the active content coming through the analog modem proved to be a heavy burden on system resources.

Microsoft no longer touts the Active Desktop as an attraction of Windows, but the feature is still there. If you have broadband Internet access, you may want to give active content a try. To set it up, open the Display Properties dialog box and choose the Desktop tab. Click the Customize Desktop button and, in the resulting Desktop Items dialog box, choose the Web tab. Click the New button to access the New Desktop Item Wizard. In the Location field, type the **URL** (**uniform resource locator**; Web address) for the content you want to add to the site. Click OK. A verification message will appear on-screen; click OK.

After you close the Desktop Items dialog box and the Display Properties dialog box, the Web content will appear on the Desktop. Position it anywhere you want on-screen.

9 Add an animated background to the Desktop.

Sure, you can use the Active Desktop to add Web content to your page. But did you also know you can use it to add an animated background to your Desktop? All you need is an animated GIF (Graphics Interchange Format) file. You'll find such files online at Animation Factory (free for personal use; http://www.animationfactory.com) and Best Animations (free; http://www.bestanimations.com), among others.

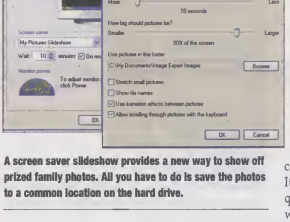
After you download the file and save it on your PC, open the Display Properties dialog box. Choose the Desktop tab and click the Customize Desktop button. In the Desktop Items dialog box, choose the Web tab and click the New button. Next, click the Browse button and locate the animated file on your PC.

When you find the file, highlight it and click the Open button to return to the New Desktop Item Wizard. Click the OK buttons to close the wizard and all dialog boxes. The animated GIF file will now appear as a small box on the Desktop. Reposition and resize the animation however you like. To complete the process, right-click the animation, choose Arrange Icons By, and select Lock Web Items On Desktop.

10 Alter the Start button text.

Change for the sake of change can be fun, especially when it involves elements of the Desktop that most people accept as unalterable. Take the Start button as an example. You can modify the text on the Start button to any combination of five alphanumeric characters. Instead of a Start button, you might have a Begin button or a Hello button, for instance.

The first thing to do is backup the Explorer.exe file, which is located in the Windows folder on the Windows drive. The second thing to do is obtain a binary file editor (also referred to as a hex editor). We suggest Frhed, a freeware hex editor, for this simple task. You can download Frhed from http://www.kibria.de/frhed.html.



A screen saver slideshow provides a new way to show off prized family photos. All you have to do is save the photos to a common location on the hard drive.

After you download Frhed to your PC, use it to open the Explorer.exe file. The contents of the file will appear on-screen in hexadecimal format between a list of markers (called **offsets**) on the left and a translation of the hexadecimal data on the right. Scroll down the list of offsets until you find the entry that starts with 0412ad (depending on your PC configuration, the actual offset may differ slightly from this). On the far right, you will see a corresponding entry for s.t.a.r.t. Highlight the "s" and type the character that will replace it. Repeat this step until you finish typing five new characters. Open the File menu, click Save As, and then save the file as Explorer1.exe.

Now it's time to open the Registry Editor. But before you make any changes, we must remind you of our previous warning about editing the Registry: Use extreme caution and always back it up first. For more information about backing up the Registry, see "Protect Yourself" on page 32.

If you're ready to proceed with this tip, open the Start menu and click the Run command. In the resulting dialog box, type **regedit** in the Open field and click OK. When the Registry Editor window opens, you'll see its contents organized into folders and subfolders. You need to navigate through these folders and subfolders to find the **values** (settings) that let you set WinXP to use the new Explorer1.exe file instead of the old Explorer.exe file. Burrow through the HKEY_LOCAL_MACHINE, SOFTWARE, Microsoft, Windows NT, and CurrentVersion folders to locate and highlight the Winlogon subfolder. A list of values will appear in the right pane of the Registry Editor.

Locate and right-click the Shell value and select Modify from the context menu. In the resulting dialog box, type explorer1.exe in the Value Data field. Click OK and close the Registry Editor to save the changes. When you reboot the PC, the Start button will have a new name.

11 Brand the Start menu as your own.

An interesting way to customize the Start menu is to add a brand to it. A **brand** is essentially a permanent Start menu shortcut that users cannot move, delete, or change easily. It's a handy technique that is frequently used to stamp multiple PCs with shortcuts to a corporate or personal Web site, thereby claiming them for a company or individual.

The first thing to do is create a new file for the Registry. Back up the Registry (see "Protect Yourself" on page 32 for specific instructions) and then open Notepad. You'll find Notepad on the Start menu by burrowing through the All Programs and Accessories folders.

Next, type the following code (shown in bold after this paragraph) into the body of a new document (and we will give you additional information about replacing the *<TITLE>*, *<ICON>*, and *<PATH OR ADDRESS>* entries in just a moment). If you're a *Smart Computing* subscriber, you have another alternative: Rather than typing this long entry, access this magazine and article online at http://www.smartcomputing.com and copy and paste the following code into Notepad.

```
Windows Registry Editor Version 5.00

[HKEY_CLASSES_ROOT\CLSID\{2559a1f6-21d7-11d4-bdaf-00c04f60b9f0}]
@="<TITLE>"

[HKEY_CLASSES_ROOT\CLSID\{2559a1f6-21d7-11d4-bdaf-00c04f60b9f0}\DefaultIcon]
@="<ICON>"
00,79,00,73,00,74,00,65,00,6d,00,33,00,32,00,5c,00,68,00,70,00,6c,00,69,00,\
6e,00,6b,00,2e,00,69,00,63,00,6f,00,00,00

[HKEY_CLASSES_ROOT\CLSID\{2559a1f6-21d7-11d4-bdaf-00c04f60b9f0}\InProcServer32]
@=hex(2):25,00,53,00,79,00,73,00,74,00,65,00,6d,00,52,00,6f,00,6f,00,74,00,25,\
00,5c,00,73,00,79,00,73,00,74,00,65,00,6d,00,33,00,32,00,5c,00,73,00,68,00,\
64,00,6f,00,63,00,76,00,77,00,2e,00,64,00,6c,00,6c,00,00,00
"ThreadingModel"="Apartment"

[HKEY_CLASSES_ROOT\CLSID\{2559a1f6-21d7-11d4-bdaf-00c04f60b9f0}\Instance]
"CLSID"="{3f454f0e-42ae-4d7c-8ea3-328250d6e272}"

[HKEY_CLASSES_ROOT\CLSID\{2559a1f6-21d7-11d4-bdaf-00c04f60b9f0}\Instance\InitPropertyBag]
"CLSID"="{13709620-C279-11CE-A49E-444553540000}"
"method"="ShellExecute"
"Command"="<TITLE>"
"Param1"="<PATH OR ADDRESS>"

[HKEY_CLASSES_ROOT\CLSID\{2559a1f6-21d7-11d4-bdaf-00c04f60b9f0}\shellex]

[HKEY_CLASSES_ROOT\CLSID\{2559a1f6-21d7-11d4-bdaf-00c04f60b9f0}\shellex\ContextMenuHandlers]

[HKEY_CLASSES_ROOT\CLSID\{2559a1f6-21d7-11d4-bdaf-00c04f60b9f0}\shellex\ContextMenuHandlers\{2559a1f6-21d7-11d4-bdaf-00c04f60b9f0}]
@=""

[HKEY_CLASSES_ROOT\CLSID\{2559a1f6-21d7-11d4-bdaf-00c04f60b9f0}\shellex\MayChangeDefaultMenu]
@=""

[HKEY_CLASSES_ROOT\CLSID\{2559a1f6-21d7-11d4-bdaf-00c04f60b9f0}\ShellFolder]
"Attributes"=dword:00000000
```

Next, you need to customize the code you just typed by replacing the two *<TITLE>* entries with the name of your brand and replacing the *<ICON>* entry with the path (location of a file on a storage drive, such as C:\WINDOWS\Explorer.exe) to the icon that will serve as the brand. Also, replace the *<PATH OR ADDRESS>* entry with the URL (in the case of a Web site) or path (in the case of a program or file stored on your computer system) of the Web site or program associated with the brand.

Windows XP lets you add digital images to your folders. Use this customization feature to jazz up your collection of MP3 files.

When you finish, open the File menu and click the Save As command. In the resulting dialog box, set the Save In drop-down menu to the Windows folder on the Windows drive, type brand.reg in the File Name field below, and set the Save As Type drop-down menu to All Files. Click the Save button to save the file.

Finally, close Notepad and open My Computer. Locate the Brand.reg file in the Windows folder and double-click it. A verification message will appear on-screen; click the Yes button to add the brand to the Registry. When you reboot the PC, the brand will appear beneath the Run icon inside the Start menu.

Please note that you must use an icon that has dimensions of 24 x 24 pixels. The Start menu will not support icons that are any larger than that. If you use an icon that is larger than 24 x 24 pixels, the brand will appear as a generic yellow folder with your selected title next to it. You can use icon-editing software, such as ArtIcons from Aha-soft ($19.95; http://www.aha-soft.com) and IconCool Editor from IconCool ($19.95; http://www.iconcool.com), to craft your own 24- x 24-pixel icons.

12 Transform folder icons. A lot can be said about the hierarchical filing structure in WinXP. It's intuitively designed, neatly organized, and ingeniously flexible. It's also boring, consisting of one yellow folder after the other. Fortunately, WinXP lets you customize the yellow folders with your collection of digital images, including GIF, JPEG (Joint Photographic Experts Group) and BMP (bit map) graphics. In most cases, the process is fairly easy, provided you have digital images stored locally on the Windows drive.

Open My Computer and locate the folder you want to customize. Right-click the folder and select Properties from the context menu. In the resulting dialog box, choose the Customize tab. Click the Choose Picture button and browse your PC for the image you want to use to represent the folder. After you locate the image, highlight it and click the Open button to return to the Customize tab. A Preview area shows you how the image will look on the folder. Click OK to activate the change.

At this point, the folder may still appear as a plain yellow folder icon in the My Computer window. To view the folder with its accompanying image, open the View menu and select the Thumbnails option.

In Moderation. It's easy to get carried away when customizing the Desktop. Yes, we said it's easy, but implementing too many changes isn't recommended. Before instituting any Desktop customization, think carefully about whether it has a meaningful purpose for you and whether that purpose will improve your productivity or efficiency. If the answer is no, we suggest you skip the tweak. The less you mess with your computer, the less likely it is to crash and cause other problems you don't want to deal with. LS

by Jeff Dodd

A Handy DOS Throwback

Launch Programs From The Address Bar

Although Microsoft has done its best to convince computer users that the GUI (graphical user interface) is the best way to use a computer, some old habits die hard. Windows XP's Address bar is a perfect example of this. It seems that the developers at Microsoft just didn't have the heart to rip it-out of the revamped OS (operating system), which is good, because it's a very helpful tool that harkens back to the days of DOS, albeit now surrounded by a modern GUI. We'll show you how the Address bar can be used, how to find and configure it, and some tricks that will make it a valuable part of your computer tool kit.

■ **What's In It For Me?** First of all, the name is really a misnomer; the Address bar is far more than just a place to enter Web addresses, as you would in Internet Explorer. Instead, it functions as a launching point for *any* application you have on your computer, similar to the way you'd use the Run dialog box. Just as you can click an icon to launch a program, so can you launch it with the Address bar.

■ **Enabling The Bar.** Enabling and configuring the Address bar is straightforward. First, right-click the Taskbar, select Toolbars, then Address. You should see an Address label appear next to your System Tray, with a dividing line to the left of the text. Double-clicking the "Address" text expands the Address bar to reveal an address field identical to IE's, down to the Go button. Double-click again and the field will contract to its original size. If you want to display the address field permanently on your Taskbar, simply left-click and drag the dividing line that's to the left of the "Address" text. This will create a field on your Taskbar that is unobtrusive, but always available for quick access.

If you find that you can't expand the Address bar, you may have inadvertently locked your Taskbar. New to Windows XP, this feature lets you customize the Taskbar to your liking, and then lock that configuration solidly in place. When it's locked, you can't resize or move any of the components without first unlocking the Taskbar. To do so, just right-click the Taskbar, then uncheck the Lock The Taskbar option.

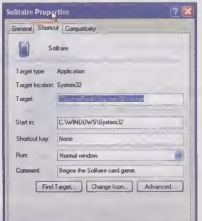
You may have noticed that your cursor changed to a four-way arrow when you left-clicked to drag the Address bar. This signifies that you can drag the Address bar off the Taskbar and onto your Desktop. (Actually, any toolbar you select, not just the Address bar, can be moved.)

■ **Using The Bar.** Now that you have the Address bar enabled, it's time to dive into the myriad ways you can use it. If you've used DOS, or any OS that relies heavily upon the command line, you'll feel right at home. If not, we'll show you the easiest way to make efficient use of the Address bar.

Launching Internet Explorer. As its name implies, the primary use of the Address bar is launching IE; simply type in the Web address of your favorite site and either press ENTER or click the Go icon. IE will launch and load the page you requested. Repeat this action to launch multiple browsers.

Launching applications. Using the Address bar to launch applications can be a little more involved. The first obstacle is learning the name of the application you wish to launch. Although your favorite application might be named Solitaire, the actual name of the executable program is Sol.exe. So, to launch Solitaire from the Address bar, simply type **sol**, and then click the Go icon or press ENTER. The Address bar is smart enough to append .exe to any name you enter, and the Solitaire program should appear on your Desktop.

But what if you don't know the executable name of an application? Well, there's an easy way to find it. The first step is to right-click the application's shortcut or menu entry on the Start menu. Select Properties and an information window will appear with the Shortcut tab selected. Looking in the Target field will reveal the location and name of the actual executable. In our Solitaire example, the field displays the following text: "%SystemRoot% \System32\sol.exe." To launch the application, you don't need to enter the entire Target field, just the portion after the last backslash. (And, as we mentioned, you don't really need to enter the .exe portion, although doing so does no harm.)



You'll need to find the name of your application's executable file before you can launch it with the Address bar.

Now that you're armed with a live Address bar, take some time to experiment by using it instead of the Start menu. The Address bar isn't the only way to access Web pages and applications, but it is often the fastest way to do so. LS

by Chris Jackson

Expand Your Toolkit

Create A Custom Desktop Toolbar

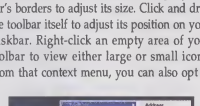
You may already be familiar with Windows toolbars. The Quick Launch toolbar, for example, is a collection of shortcut icons that often appears by default on your Taskbar. Quick Launch makes it easy for you to open frequently used programs with a single-click icon that's easy to get at. You may, however, be looking for just a little bit more. Say, for example, you need a quick way to access all the files and folders in one particular directory. Or, perhaps you've been wondering how to create a shortcut to a Web site from your Taskbar. Maybe you even want a *second* Taskbar on a different part of your screen. Windows XP lets you accomplish all this by creating custom toolbars. Just follow these simple steps to move beyond Quick Launch and begin creating your own custom toolbars.

Build It Yourself. The basic method for creating a new toolbar is very simple. Right-click the Taskbar, select the Toolbar menu, and choose New Toolbar. From this menu, you can also choose to display or hide any of the default toolbars by checking or unchecking them. Now either browse to a folder you would like to include on your toolbar or enter an Internet address in the Folder text box. If you select a folder, the toolbar will display shortcuts to its contents, both files and subfolders. If you want to include a Web site in your toolbar, make sure to include the "http://" prefix in your URL (uniform resource locator) so that WinXP knows you're giving it an Internet site. This will open a minibrowser screen in your Taskbar, displaying the designated Web page. Repeat the process for each folder or URL you want to include on your Taskbar. They will appear at the end of your Taskbar; simply double-click the titles to expand or collapse each one.

Toolbar contents will display in a resizable window if you drag them to the Desktop. If you drag a toolbar to any edge of your screen, it will automatically attach itself to that side (like the Taskbar). Right-click the newly-relocated toolbar to select whether it should be Always On Top or whether it should Auto-Hide, again like the Taskbar.

Keep it neat. Of course, you may not want to limit your toolbars to the contents of one folder or one URL at a time, and creating new toolbars for each folder or URL can get out of hand very quickly. With a little forethought, you can create a single toolbar that contains all of your custom links. First, decide which items you want to be able to access from your toolbar. This could be a combination of folders, files, and URLs. Next, use Windows Explorer to create a folder somewhere on your hard drive. Give it a name such as Custom Toolbar or something else you can remember easily. Next, create shortcuts to each item you want to include. You can easily create a shortcut by right-clicking an item and choosing Create Shortcut from the context menu. Place each of these shortcuts into your new folder. To add links to specific URLs, navigate to the site with Internet Explorer. From the File menu, click Send and choose Shortcut To Desktop. This will create an Internet shortcut file that you can move to your custom toolbar folder. Finally, follow the steps above to create a single customized toolbar that incorporates your new folder of collected shortcuts.

You also have several options for controlling the appearance of your toolbar. Make sure that your Lock The Taskbar option (right-clicking the Taskbar to access it) is unchecked, and then drag the toolbar's borders to adjust its size. Click and drag the toolbar itself to adjust its position on your Taskbar. Right-click an empty area of your toolbar to view either large or small icons. From that context menu, you can also opt to either show the title of your toolbar or display the text description of each item. Altering the width of the Taskbar itself will give your toolbar more or less room, which can be especially important if you've embedded a URL in your Taskbar.



With only a few clicks, you can create a custom toolbar that includes files, folders, and even Web sites.

Organize your custom toolbars and adjust their appearances on the Windows Taskbar.

Move 'em where you want 'em. You can also pull toolbars off the Taskbar onto the Desktop, or you can nest them elsewhere on your screen. Just place your mouse pointer in an empty area of the toolbar, click, and drag.

The Right Tool For The Job. Although Windows' boilerplate toolbars can be useful additions to your Taskbar, the ability to create your own custom toolbars will also come in handy. They let you include folder and URL shortcuts, as well as application icons, and give you greater control over appearance and functionality. And after all, isn't that what toolbars are all about? LS

by Gregory Anderson

Playing Favorites

Keep Your Favorite Programs At The Top Of The Start Menu

Most PC users have a handful of items and applications that they access weekly, daily, or even hourly. Internet addicts will admit to frequently seeking out that link to their current browser of choice; the family financial guru can't resist accessing Quicken files or Excel spreadsheets; and gamers won't deny their need to challenge the bad guys, up their high score, or beat their fastest time, possibly several times throughout the day.

By now, most of us know we can find our favorite applications at any time via Windows XP's maze of menus and submenus under Start and All Programs. But not many of us enjoy searching and seeking through that stacked alphabetical list every time we need a particular software package. So, Microsoft made life simpler by placing our most frequently used applications right inside the front panel of WinXP's Start Menu in a section called, cleverly enough, Most Frequently Used Programs. But the Microsoft team took that convenience a step further with a Pinned Items List, where we can permanently store handy shortcuts to our favorite applications.

■ **A Close Look At Start.** In Category View, WinXP's Start menu is divided into two parts: the aforementioned Most Frequently Used Programs List and the Pinned Items List. The Most Frequently Used Programs List appears in the lower portion of the left column, beneath a thin gray line that separates them from the Pinned Items List just above. By default, the Most Frequently Used Programs List will display shortcuts in order of most used to least used, to as many as six of your most recently used applications. You can't change the order of this list; the items used most frequently will always appear near the top. You can, however, remove an item from the Most Frequently Used Programs List: Simply right-click the shortcut inside the Start menu and then click Remove From This List.

■ **You're In Control.** However, you do have control over which items appear in the Pinned Items List, as well as the order in which they appear. As you recall from above, the Pinned Items List appears above the gray separator line just above your Most Frequently Used Programs List. The Pinned Items List displays a fixed list of shortcuts to applications that will not change or update unless you specifically choose to change or update them. By default, the Pinned Items List automatically includes shortcuts to your default Web browser and email program. However, you can also add shortcuts to this list, remove them, or change their order at any time.

Microsoft calls the process of adding items to this list "pinning." To pin a program or a shortcut to a program to your Start menu, begin by locating the item on your PC's hard drive and then right-click it; then select Pin To Start Menu. You may also add or pin items to the Pinned Items List by dragging and dropping them directing onto the Pinned Items List section on your Start menu. Or, simply drag and drop the application (or a shortcut to it) directly onto the Start button on your Taskbar.

Items that appear in the Pinned Items List are listed the order in which they've been added, unless you choose to change their order on your own. To alter the order and prioritize the items in your Pinned Items List, begin by clicking the Start button to open the Start menu, and then drag and drop the shortcut icons one by one until they appear in the order that you prefer.

Once an item has been pinned, it will remain on the Pinned Items portion of your Start menu until you take steps to remove it. To remove a shortcut from your Pinned Items List, right-click the item from the Start menu and click Unpin From Start Menu or Remove From This List. The item will immediately be removed from your Pinned Items List. Note that shortcut icons in the Pinned Items List will not work if the actual executable file is moved or deleted. If you delete an application with a shortcut that appears in the Pinned Items List, you must manually remove the shortcut icon from the Pinned Items List. If you move the application to another folder or location, you'll need to remove the Pinned Items shortcut icon manually and then re-add the item to the Start menu Pinned Items as described above.

■ **Can't Fight Customization.** WinXP's developers have gone out of their way to put the power of customization into your hands, and that includes choosing the shortcuts that appear inside the Start menu. Save yourself the hassle of searching endlessly through menus and submenus for that favorite game, word processing package, or digital music application by putting them front-and-center at the very top of your list. LS

by Linda Rains

Help Getting Around

14 Accessibility Features

Most of us have difficulty imagining life without computers. For users with special needs, however, computers can be difficult or impossible to use. Recognizing the importance of accessibility for everyone, Microsoft packed Windows XP with more accessibility features than any previous Windows OS (operating system).

As Microsoft states repeatedly, the accessibility features in WinXP are intended to provide a minimum level of functionality for users with severe disabilities. For the long term, those users will benefit from additional assistive technologies, such as word prediction software or screen readers. The Microsoft Accessibility Web site at http://www.microsoft.com/enable is a good resource for learning more about third-party assistive technologies and WinXP's accessibility features in general.

If you have slight impairments, customizing WinXP's accessibility features and other settings makes using your PC easier. What's more, many of the following tips for tweaking WinXP apply to anyone who wants to customize its look and feel.

Accessibility Features

WinXP offers several tools for making your PC easier to use. These include the Accessibility Wizard, accessibility options and utilities, and accessibility settings in Internet Explorer. The tips in this section focus on these features.

1 The Accessibility Wizard. The Accessibility Wizard brings together a variety of accessibility settings to simplify the configuration process. To start the wizard from Control Panel, click Accessibility Options and then click Configure Windows To Work For Your Vision, Hearing, And Mobility Needs. After you click the Next button, the wizard displays screens for Text Size, Display Settings, and Set Wizard Options, respectively.

The Set Wizard Options screen organizes settings from the Accessibility Options dialog box. The wizard selectively displays the options based on your choice of vision, hearing, mobility, or administrative needs. If you want to open Accessibility Options outside of the wizard, open Control Panel, click the Accessibility Options category, and then click Accessibility Options.

2 Utility Manager. WinXP includes three Accessibility Utilities: Narrator, Magnifier, and On-Screen Keyboard. You can administer all three from WinXP's Utility Manager. To start the Utility Manager, press Windows-U. Narrator, a TTS (text-to-speech) program, automatically starts to help users with vision disabilities. If you prefer, you can disable this by selecting Narrator from the list in Utility Manager and then clearing the Start Automatically When Utility Manager Starts checkbox.

Utility Manager offers a quick way to start and stop Narrator, Magnifier, and On-Screen Keyboard. Simply select the utility from the list and click either the Start or Stop button. You can also start a utility or the Utility Manager from Start, All Programs, and Accessibility. If you prefer, the Utility Manager lets you configure a utility to start automatically, for example, when you log in to your computer. For more information about using the utilities, see tips 6, 8, and 11.

3 Make IE accessible. IE6, which is bundled with WinXP, includes a variety of accessibility settings. To view them, click Internet Options from the Tools menu and then click the Accessibility button in the bottom right of the General tab.

The Accessibility dialog box contains a number of options. Use the settings in the Formatting area to ignore a Web page's colors, font styles, or font sizes. You can then define a set of colors or fonts that are easier for you to view. Configuration settings are under the Colors button and the Fonts button on the General tab. In addition to the General tab, the Advanced tab contains settings that may enhance IE's usability.

Vision Impairments

The following tips are suggestions for improving your computer experience if you have vision-related problems. Although some options are available in the Accessibility Wizard, we present ideas for fine-tuning them.

4 Sharpen type. To make text appear sharper, especially on LCDs (liquid-crystal displays), try ClearType. This feature requires a video card and monitor that support at least 16-bit color depth. To verify color settings, right-click the Desktop, click Properties, and click the Settings tab. The Color Quality area should be set to a minimum of Medium (16-bit). You will achieve even better results if you set Color Quality to High (24-bit) or Highest (32-bit).

After you verify the color settings, the best way to enable ClearType is by visiting the ClearType Web site at http://www.microsoft.com/typography/cleartype/cleartypeactivate.htm. The home page of the site includes a checkbox that activates ClearType. After you check the box, click the link at the bottom of the page for step 2. This page lets you tune ClearType's contrast settings. The contrast-tuning feature is available only on this Web site.

5 Enlarge the display. With WinXP, you can adjust Display settings to make information easier to see and read. Although you can increase the size of fonts or icons, users with vision problems will probably benefit most from increasing the size of the entire display. To do this, right-click the Desktop, click Properties, and click the Settings tab. Move the slider bar in the Screen Resolution area to the left and then click OK. If, for instance, the slider is currently at 1,024 x 768, changing it to 800 x 600 enlarges everything on your screen.

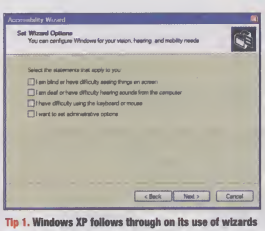
After adjusting Display resolution, some of the icons on your Desktop may be partially or totally hidden. To correct this, right-click the Desktop, point to Arrange Icons By, and then select the arrangement you want to use for your Desktop icons.

6 Magnify it. The Magnifier differs from the display resolution setting in a number of ways. First, the Magnifier utility does not apply to all users. Second, Magnifier resembles a magnifying glass; it enlarges only a portion of the screen in a separate window. Finally, ClearType is automatically disabled in both the magnified and non-magnified areas of the screen.

To open Magnifier, press Windows-U, which opens the Utility Manager. Select Magnifier and click the Start button. In the Magnifier Settings dialog box, indicate how you want the tool to track movement. To bypass the dialog box the next time you start the program, check Start Minimized. After you make any additional adjustments, minimize the Magnifier Settings dialog box and then close the Utility Manager.

Content in the Magnifier window is easier to see when docked to the top of your screen. To dock Magnifier, point the mouse inside the magnified window. When the hand displays, click and drag the window to the top of your screen. You can resize the magnified window by dragging its border. However, the Magnifier window size is limited to one-half of the computer's display area.

7 High contrast. The High Contrast setting, which is located in the Accessibility Options of the Control Panel, offers several alternative displays for users with low vision. To implement a High Contrast scheme, open Control Panel, click Accessibility Options, select the Display tab, check the Use High Contrast box, and then click the Settings button. If you want to toggle between High Contrast and your normal display, check the box Use Shortcut. Next, select a scheme in the High Contrast Appearance Scheme area. Click OK to save your settings.


Accessibility Wizard
Set Wizard Options
You can configure Windows for your vision, hearing, and mobility needs
Select the statements that apply to you:
I am blind or have difficulty seeing things on screen
I am deaf or have difficulty hearing sounds from the computer
I have difficulty using the keyboard or mouse
I want to set administrative options
< Back
Next >
Cancel

Tip 1. Windows XP follows through on its use of wizards to ease configuration with the Accessibility Wizard.

8 TTS. WinXP supports TTS technology, which converts information on your screen to spoken voice. If you need this feature frequently, consider purchasing TTS software (also known as speech synthesizer software). Enablemart (http://www.enablemart.com) is a Microsoft-recommended vendor for third-party accessibility software. Make sure any TTS software you purchase is compatible with WinXP.

If you occasionally need TTS, you can try WinXP's Narrator utility, which is designed to work with Notepad, WordPad, Control Panel, IE, Windows Desktop, and Windows Setup. To access Narrator, open the Utility Manager by pressing Windows-U. If Narrator does not start automatically, select it and then click the Start button. Use the Narrator dialog box that displays to configure the way Narrator reads screens and text. If you click the Voice button, you can adjust the speed, volume, and pitch of Microsoft Sam, the voice supplied with Narrator.

Narrator is sometimes difficult to understand. It mispronounces words, and it may not work properly in all applications. Despite these shortcomings, this utility has been improved over previous Windows OSes and future updates to WinXP may include enhancements. Until then, check out third-party offerings if you need a more robust TTS application.

9 Find your mouse. The Mouse Properties dialog box offers a handy feature for locating the mouse pointer. To access this option, open Control Panel, click Printers And Other Hardware, and then click Mouse. On the Mouse Properties dialog box, click the Pointer Options tab. Under the Visibility section, check Show Location Of Pointer When I Press The CTRL Key.

Mobility Impairments

If you have difficulty using the mouse or a standard keyboard, WinXP offers many features that can make using your computer easier. In addition to running the Accessibility Wizard, review the following tips for alternatives to standard keyboard and mouse use.

10 Reconfigure your keyboard. The Dvorak layout is a keyboard arrangement that places the most frequently typed keys, such as T, H, and E, on the home row. In contrast, the standard QWERTY keyboard that most of us use was not designed with ease-of-typing in mind. As illustrated at http://www.microsoft.com/enable/products/dvlayout.htm, there are three Dvorak layouts: two-hands, left-hand only, and right-hand only. If you have difficulty typing or are without the use of one hand, a Dvorak keyboard layout can help.

With WinXP, you can convert your standard keyboard to a Dvorak layout without purchasing additional hardware or software. To implement a Dvorak layout in WinXP, open Control

Panel, click Date, Time, Language, And Regional Options, and then click Regional And Language Options. In the Regional and Language Options dialog box, click the Languages tab and then click the Details button. Under Installed Services, click the Add button. In the Add Input Language dialog box, select English (United States) for the Input Language and then select the desired Dvorak layout in the Keyboard Layout/IME list: for example, United States-Dvorak. Click OK to return to the Settings screen. Select the Default Input Language, and then click OK. A small Language bar displays, which you can use to switch between keyboard layouts.

If you decide to use a Dvorak layout, you can purchase appropriate labels for your keys from Fentek Industries ($12.95; http://www.fentek-ind.com). Of course, if you are accustomed to the standard QWERTY keyboard, you also need to retrain your fingers. There are a number of typing programs available to help with the learning process.

11 On-Screen Keyboard. Another keyboard alternative is the On-Screen Keyboard utility. To access this tool, open the Utility Manager by pressing Windows-U. Select On-Screen Keyboard and click the Start button.

The keyboard window contains a Settings menu. Click this and then select Typing Mode to choose how you want to select keys on the virtual keyboard. Options include Click To Select, Hover To Select, or Joystick Or Key To Select. Choose the mode that is easiest for you to maneuver. For instance, if you have difficulty pressing the mouse button, choose Hover To Select.

If you choose Joystick Or Key To Select, WinXP scans the virtual keyboard with a highlighted bar. You select the key you want by repeatedly pressing a key or pointing device, which you define under the Advanced button.

The Keyboard menu defines the layout for On-Screen Keyboard. If you chose Joystick Or Key To Select for Typing Mode, consider selecting the block layout option here. This layout subdivides the keyboard into smaller sections, which simplifies selecting the desired key during scanning.

12 Disable CTRL-ALT-DELETE for login. If you use WinXP Professional and have difficulty pressing CTRL-ALT-DELETE, an Administrator can disable this login requirement. Keep in mind that this is an additional security measure that should be removed only when absolutely necessary.

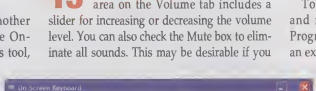
To remove the key combination for login, open Control Panel, click User Accounts, and then click the Advanced tab. Under Secure Logon, clear the box Require Users To Press CTRL-ALT-DELETE.

Hearing Impairments

When you run the Accessibility Wizard, you can enable SoundSentry and ShowSounds to receive visual cues for system and software application sounds. In addition, you can fine-tune sound settings from the Control Panel.

To display WinXP's sound settings, open Control Panel, click Sounds, Speech, And Audio Devices, and then click Sounds And Audio Devices. The following tips relate to the Sounds And Audio Properties dialog box that displays.

13 Adjust volume. The Device Volume area on the Volume tab includes a slider for increasing or decreasing the volume level. You can also check the Mute box to eliminate all sounds. This may be desirable if you are unable to hear sounds even at the highest volume levels. Check the remaining box, Place Volume Icon In The Taskbar, if you anticipate adjusting the volume frequently.



Tip 11. The On-Screen Keyboard is one of the three Accessibility Utilities. The other utilities are Narrator and Magnifier.

If you hear better at different frequencies, you may want to modify specific levels, such as the bass and treble. Click the Advanced button in the Device Volume area to access the Master Volume dialog box. The settings that display depend upon your PC's sound driver. Try playing an audio file and experimenting with the sliders to find the levels that sound best to you.

14 Assign or change system event sounds. To work with system sounds, click the Sounds tab. The Program Events area lists items that you can associate with sounds, such as Low Battery Alarm and System Notification. A volume icon displays to the left of events that currently have an associated sound.

To hear a sound assigned to an event, click the event and then click the Play Sound button (the square button with the triangle). If you want to use a sound that is more audible to you, WinXP makes it easy to switch. For example, you can change your email notice from a beep to some attention-getting music. In addition, if you have vision problems, you might benefit from assigning sounds to events that don't currently have an associated sound.

WinXP assigns sounds to events through a sound scheme, which is a collection of sounds that center on a certain theme. You can change sounds by selecting a different sound scheme in the Sound Scheme list. Among your options are the Jungle, Robotz, and Utopia sound collections. If you want to tweak the assigned sounds individually, create your own sound scheme.

To create a sound scheme, first select and modify the sounds assigned in the Program Events list to suit your needs. As an example, let's assume you want to change the sound for a new email message. To begin, click New Mail Notification in the Program Events list. The sound currently assigned displays in the Sounds box. To select a different sound, click Browse and choose any WAV file on your PC's hard drive. If you want to preview a WAV file, select it in the Browse For Sound dialog box and then click the Play Sound button in the lower-left.

After you edit the assigned sounds in the Program Events list, click the Save As button below the Sound Scheme box and save your custom sound scheme.

■ **No One Is Left Behind.** Whether in the home, at the office, or on the road, computers are everywhere. The accessibility features in WinXP and ease of customization make PCs more usable than ever. As accessibility technologies progress and mature, all computer users, especially those with special needs, will undoubtedly benefit. LS

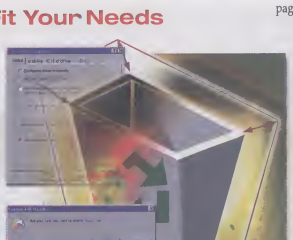
by Carmen Carmack

Recycle The Recycle Bin

Customize It To Fit Your Needs

If you've used a computer for any amount of time, you've probably made a sound something like this: "Oh, Noooooooooo!" Recognize it? It's the sound a person makes after realizing that he just deleted a very important file. Fortunately, a few years back, Microsoft shamelessly borrowed an excellent idea from the folks at Apple: provide a temporary holding space for deleted files. Apple's is called the Trashcan; Microsoft, in a fit of creative genius, called its the Recycle Bin.

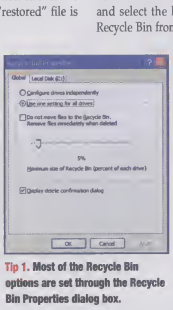
Apple was not very pleased about this and made the Trashcan a focal point of its lawsuit against Microsoft back in the mid-1990s. Several versions later, though, and with all the lawsuits settled, the Recycle Bin has become a fundamental component of the Windows OS (operating system). What you may not know, however, is that you can customize the Recycle Bin to make it conform more to your computing style. We'll show you some of the most common customizations you can explore; you may find that you have more control than you thought. Before we get to the tips, though, let's briefly explain how the Recycle Bin works.



To Delete Or Not To Delete? One thing that may surprise you is that the Recycle Bin doesn't actually exist as a physical place on your computer to temporarily store files. Rather, the Recycle Bin is a hidden folder in which Windows stores a set of files and folders with names such as Dc1.url, one folder per physical drive. These files contain information such as name, location, and deletion date for each deleted file. Don't go looking for these secret files, however; Microsoft has made it very difficult to get directly at them. Instead, whenever you view the contents of the Recycle Bin, Windows reads each information file to get the name of each deleted file and lists these instead.

This is a sort of digital sleight-of-hand that pretends to move files into a protected area while actually leaving them right where they are. Nothing really happens to the file itself until you empty the Recycle Bin or until the Recycle Bin overflows and another deleted file bumps one of your files out. If you want to restore the file, all Windows has to do is delete the corresponding information file in the Recycler directory and your "restored" file is ready to use.

Because there's a different Recycle Bin folder for each physical hard drive, you're able to set certain drive-specific Recycle Bin properties. These include the maximum size of the Recycle Bin, whether to display a delete confirmation dialog, and whether you even want to use the Recycle Bin for a specific drive. Whenever you're making changes, be sure you know whether the changes apply to all drives or just a specific one.


Global
Local Disk (C:)
Configure drives independently
Use one setting for all drives
Do not move files to the Recycle Bin. Remove files immediately when deleted
5%
Minimum size of Recycle Bin (percent of each drive)
Display delete confirmation dialog
OK
Cancel

Tip 1. Most of the Recycle Bin options are set through the Recycle Bin Properties dialog box.

Your Personal Recycler. Now that you know how it works under the covers, here are some tips for personalizing the Recycle Bin to better suit your computing style. Some of these tips require changes to the system Registry, so all the usual warnings apply: At a minimum you should back up the Registry before attempting to fiddle with it. For help on doing so, refer to "Protect Yourself," beginning on page 32.

1 Bypass it. Although the Recycle Bin seems to be an integral part of Windows, you're not required to use it if you don't want to. For those of you who consider it more of an annoyance than a feature, here's how to turn it off: Right-click the Recycle Bin icon and then select Properties. If you want to ignore the Recycle Bin completely for all hard drives, make sure the Configure Drives Independently option isn't selected. If you want to selectively use the Recycle Bin for some drives, but not others, turn this option on, and click on the tab for the drive you want to configure. Now click Do Not Move Files To The Recycle Bin.

2 Remove the Recycle Bin from your Desktop. If the very presence of the Recycle Bin annoys you, there are ways to remove it from your desktop entirely, although you'll have to download and run a Microsoft PowerToys utility called TweakUI (http://www.microsoft.com/windowsxp/pro/downloads/powertoys.asp). Once you've downloaded and installed TweakUI, open it and select the Desktop option. Just deselect Recycle Bin from the list of Desktop icons; the Recycle Bin will disappear. TweakUI is a very handy utility to have for other reasons as well, so go ahead and take a look around while you have it open.

3 Change the Recycle Bin's size. By default, the Recycle Bin uses approximately 10% of the available space on your drive. When you exceed this allocation, the Recycle Bin will automatically delete files to make room for the new ones. It applies a first-in, first-out rule, so the ones that have been in there the longest are the first to go. If you want to increase the size of the Recycle Bin

to avoid this, or wish to reduce its size to recapture unused disk space, right-click on the Recycle Bin and select Properties. If you want to set each drive's Recycle Bin separately, make sure the Configure Drives Independently option is selected. If it's not, be aware that the amount of space you set for the Recycle Bin is the amount that will be taken up *on each drive*. Move the slider to the correct size (given in percentages of overall drive space), and click Apply. (If you've hidden the Recycle Bin, as discussed in the previous tip, you can simply open Windows Explorer, right-click the Recycle Bin icon listed in the left panel, and select Properties there.)

4 Get rid of the confirmation dialog box. If you don't want that irritating confirmation dialog box popping up every time you try to delete something, you can turn it off. To do so, right-click the Recycle Bin, select Properties, and uncheck Display Delete Confirmation Dialog. As with the other Recycle Bin properties, you can set this for all drives or individually for each drive.

5 Change the Recycle Bin position on the Desktop. The Windows XP installation puts the Recycle Bin icon down in the right corner of your Desktop. If you're like us and think this is awkward, you can move this icon over with all the others. To do this, you can drag and drop it like any other Desktop icon or right-click anywhere on the Desktop and select Arrange Icons By.

6 Intermittently bypass the Recycle Bin. If you sometimes like using the Recycle Bin but want to ignore it every now and then, Microsoft provides a keyboard shortcut that bypasses the Recycle Bin and deletes a file completely. When you use this shortcut, the file is not placed in the Recycle Bin, but is deleted immediately. This is handy if you know you don't want to keep a file around where others could see it, or to delete a junk file that you don't want cluttering up your Recycle Bin. To do this, first press and hold down SHIFT and then press DELETE. (If this doesn't work, verify that your NUM LOCK key isn't on.) The file will bypass the Recycle Bin and be deleted immediately, so use this technique sparingly; the only way to get the file back (if you can get it back at all) is to run a special utility that recovers deleted files (see the "Recovering Deleted Files" sidebar).

7 Change the Recycle Bin's name. If you're consumed with an uncontrollable desire to change the name of the Recycle Bin to something more appropriate, such as "My Mistakes" or "Doug's Landfill," you'll have to dig into the system Registry. The folks at Annoyances.org (http://www.annoyances.org) have a useful Registry patch that not only lets you change the name of the Recycle Bin, but also includes some other nifty functions.

If you want to make the Registry changes yourself (back it up, first), run Regedit.exe. Open HKEY_CURRENT_USER\Software\Microsoft\Windows\ShellNoRoam\MUIcache (you can also select Find from the Edit menu and search for "Recycle Bin"). Find and double-click the Recycle Bin item in the window on the right and type the new name in the Value Data field. Press OK and then close the Registry Editor. Now click any open space on the Desktop and press F5 to refresh the Desktop icons. This change will only affect your user account, not every user on the system, so if you want to change other accounts, log on to the different account and make the same edits.

■ **It's The Little Things That Count.** None of these changes is really earthshaking, really, but isn't it good to know that you're in complete (well, almost complete) control of your own Desktop? We all have enough annoyances in the world without having to put up with simple irritations. By customizing the Recycle Bin, you can make it conform more to the way *you* work, rather than having to accept somebody else's idea of how things should operate. LS

by Ronald A. Hocutt

Recovering Deleted Files

If you've never felt that queasy, uncomfortable feeling that occurs when you realize that you just deleted an important file, just wait; it's only a matter of time. The Recycle Bin may reduce the number of times this happens, but use it often enough and you'll eventually delete the only copy of your novel. And if you opt not to use the Recycle Bin at all or bypass it frequently, your chances of doing this increase dramatically. When this happens, don't despair; there are ways of reclaiming a deleted file if you recognize and correct the error right away.

Get yourself a file recovery program. The chances of getting your file back are actually quite good if you've prepared for this moment by previously installing a file recovery utility. The time to do this is *before* you need it, because any file I/O (input/output) that occurs after you delete the file risks overwriting it. If this happens, the file is gone forever. (When you "delete" a file, it's actually still on your hard drive, but the space it occupies is marked as "available" for the OS [operating system] to write other files.)

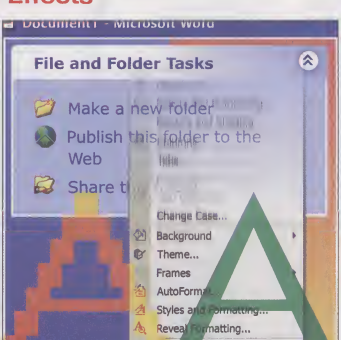
If you've already accidentally deleted a file and you don't already have a file recovery program installed, you'll have to download and install one, hoping you don't overwrite the sections of your hard drive where the deleted file currently resides. You can increase your chances of success by downloading and installing the file recovery program to a different hard drive (if you have one). There are literally hundreds of file recovery utilities, and prices are all over the map. Although you can spend upward of $400 for some, there are quite a few good ones, such as R-Undelete (http://www.r-tt.com), available in the $30 to $60 range. If you own a product such as Norton Utilities, you already have a very capable undelete utility. If not, typing **undelete** in any Internet search engine will give you hundreds of choices. Just make sure you get one designed for your version of Windows, as not all OSes use the same method of storing files. In addition, we recommend you stick to a well-known product and avoid freeware; there's no telling what can happen when a poorly written program directly accesses your hard drive.

Once you have installed an undelete program or started the one you already have, it's merely a matter of crossing your fingers and hoping the utility will be able to recover your file. You'll know soon enough. If it can, you can go about your merry way as if nothing ever happened. If not, think of it as a good reminder to back up your critical files on a regular basis. ■

Effective Effects

Speed Up Your System By Nuking XP's Effects

One of the most widely touted differences between Apple's iMac and a PC running the latest version of Microsoft Windows is the look and feel of the interface. Although some would dismiss the iMac's sophisticated visual effects as mere "eye candy," there's no doubt that Apple has held the visual appeal high ground since the beginning of the computer wars. Seeking to correct this, Windows XP sports numerous special visual effects designed to improve appearance and ease of use. And even though all of them are visually appealing, not all are particularly beneficial, especially when one considers the system resources they require to run.



To help you get the maximum performance from your system, we'll explain XP's effects, point out which ones use up the most resources, and show you how to selectively turn them off.

■ **What You See.** Windows XP's new visual effects fall into three general categories: display, font rendering, and transitions. Most of these were designed to improve screen readability or system usability but, frankly, we think some fall squarely into the category of gratuitous overhead. We'll help you decide which is which.

Display effects. Every window, folder, or menu the system uses has a set of visual criteria associated with it. This includes items such as the color of the menu bar, the file display method, and the item's background. Many of these parameters are part of the standard theme assigned to a given window or menu, but Windows also offers some extra options that can dramatically improve the appearance of the interface. (However, some of these effects use up a lot of resources). Among these are items such as:

- Show Shadows Under Menus: Creates a shadowed 3D effect for each menu item.
- Use A Background Image For Each Folder Type: Specifies a background image for different types of folders.
- Use Common Tasks In Folders: Displays a list of links to common functions, such as Make New Folder, on the left side of the window.
- Use Visual Styles On Windows And Buttons: Applies a visual style sheet to windows and buttons.
- Use Drop Shadows For Icon Labels On The Desktop: Creates a 3D shadow for the text of a desktop icon.

Some of XP's display effects, such as shadowing the Desktop icons (shown on the right), consume a lot of resources because they apply to everything you see.

Because the effects listed apply to every window, menu item, folder, and even the Desktop itself, they require more of your system's resources than many of the other effects. The impact on your particular system will depend on which ones you turn on, how many windows you have open, the number of Desktop icons you have, and other factors. In general, though, these effects cost more in terms of system resources than the others mentioned. In our unofficial tests, our **system cache** (a temporary storage place of high-speed RAM the system uses to store window display parameters) usage increased about 5% when all the display effects were turned on. Although this may not seem like much, it's enough to seriously erode performance, especially on some slower machines. And the impact will increase as you open up more applications; and naturally, that's just when you most need system resources.

Font rendering. Font rendering is a technology used to display text on a screen. If done poorly, it can severely inhibit the functionality of a computer, not to mention give the user a headache. The problem is caused by the jagged edges of screen fonts, which are notoriously hard to look at for very long. If you've had to squint at your monitor from four inches away while rapidly blinking your eyes to see the screen clearly, you know what we mean. This issue came to the forefront with the explosive popularity of notebooks. Along with their LCD screens came a howl of criticism of the readability of existing fonts. To correct this, Windows XP ships with something called ClearType font smoothing, a technology that smoothes the jagged edges of screen text and is a vast improvement over previous font rendering techniques. Like the display effects, this feature has a fairly high cost in terms of performance because it is applied to everything that has text. Unlike the other display effects, however, turning on ClearType can pay back sizable dividends for the resources it uses, especially for notebook users whose smaller screens and LCD technology can often make viewing on-screen text positively painful.

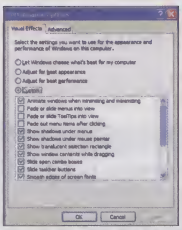
As often happens, however, fixing one problem may cause another. In the case of using ClearType font smoothing, some feel it causes

text to appear a bit fuzzy and out of focus on desktop monitors. Font display is a matter of personal taste, so we recommend you give ClearType a try. If you don't feel it improves screen readability, turn it off (we'll show you how a bit later). If you like it, however, and find that it reduces eye fatigue, you'll probably decide that the overhead it consumes is worth the payback.

Transition effects. Every time you open a folder, select a menu, or move a window, XP transitions from one view to another. Depending on your preference, XP can simply open or close the new window in the traditional "now you see it, now you don't" fashion, or you can pick and choose from a set of transition effects that add a degree of subtle smoothness to those actions. Some of these effects are so subtle, in fact, that if you're like us, you'll have to test them by turning them on and off several times to identify what they actually do. Altogether, however, they add a very nice touch to the OS (operating system) by significantly reducing the feeling of "jerkiness" and the accompanying disorientation that Windows can sometimes produce. We particularly liked the Animate Windows When Minimizing And Maximizing effect. With this turned on, the window outline expands or contracts from the Taskbar to the fully open window. This helped us locate where the window was when we accidentally minimized it (something we do with alarming regularity), instead of leaving us wondering whether we had accidentally closed (as opposed to minimized) the window. Some other interesting transition effects are:

- Fade Or Slide Menus Into View: Depending on what you select, this effect fades or slides a menu into or out of view.
- Fade Or Slide ToolTips Into View: Same effect as the previous one, but applied to those annoying ToolTips.
- Fade Out Menu Items After Clicking: Briefly displays a faint ghost of the menu item after it is clicked. This is a very nice feature if you are in the habit of clicking the wrong item.
- Show Window Contents While Dragging: This effect lets you view the contents of a window while you're dragging it, rather than just the outline of the window.

The best thing about all of these effects is that they only take up system resources intermittently, as you open and close windows, folders, and menus, so the overall impact on your machine is pretty small. In our unofficial tests, there was no discernable increase of the system cache usage even with all of these effects turned on. If you like the "cool" factor they provide, you can turn them all on with little or no performance degradation.


Visual Effects
Advanced
Select the settings you want to use for the appearance and performance of Windows on this computer.
Let Windows choose what's best for my computer
Adjust for best appearance
Adjust for best performance
Custom:
Animate windows when minimizing and maximizing
Fade or slide menus into view
Fade or slide ToolTips into view
Fade out menu items after clicking
Show shadows under menus
Show shadows under mouse pointer
Show translucent selection rectangle
Show window contents while dragging
Slide open combo boxes
Slide taskbar buttons
Smooth edges of screen fonts
OK
Cancel

There are more than 16 visual effects in Windows XP; some of them are useful, but you may decide that others simply slow down your machine.

Performance Tuning. As a general rule, we suggest you turn off any effect that doesn't add to the overall usability of your system unless its overhead is minimal. There's no rule that says every effect has to be useful, of course; sometimes you just like the effect. You should realize, however, that you may be paying a high price for aesthetic appeal. Some effects are worth the cost in system resources and some aren't, so consider the nature of the effect and the resources it uses when deciding whether to keep it turned on. As a good exercise, we suggest that you spend a few minutes turning effects on and off to see what they do. If you can't see the difference, nuke it.

How To Set Effects. Microsoft provides two avenues through which you can set visual effects. The first provides a limited number of options for setting font-smoothing and menu transitions. To set these, right-click any open area on your Desktop. This brings up the Display Properties dialog box. Click Effects under the Appearance tab. From this dialog box, you can set the Fade Effect to None, Fade, or Scroll. You can also tell Windows to do no font smoothing, or to use standard font smoothing or ClearType. Some other performance tuning options available here are Show Shadows Under Menus and Show Window Contents While Dragging.

The other means of setting visual effects gives you access to all 16 effects at once. Click the Performance And Maintenance icon inside the Control Panel, then click System. Click the Advanced tab and, under Performance, click Settings. You now have access to all of XP's visual effects, and can turn them on or off according to your particular needs. In addition, two shortcuts will adjust all options for best performance or best appearance, although we found these to be of little value because one simply turns all effects on and the other turns them all off. If you wish, you can also let XP decide which effects are best for your computer, but we wouldn't recommend it. Because XP doesn't know what's important to you, you may wind up with useless effects and end up bypassing the truly valuable ones.

Affected By The Effect. We confess that we're visual effects junkies. We love them for many reasons, not the least being that we feel less cranky and bleary-eyed after several hours at the keyboard. But no effect is worth increasing your stress level as your computer grinds away in a pitiful (and sometimes futile) attempt to keep up with its workload. If you like XP but really wish it would run faster, turning off some visual effects may help. LS

by Ronald A. Hocutt

As a general rule, we suggest you turn off any effect that doesn't add to the overall usability of your system unless its overhead is minimal.

New Name, New Functionality

Control Your System Tray Icons

Windows XP's Taskbar Notification Area (formerly known either as the System Tray or "the area with the clock and a bunch of other little icons") is the best of tools and the worst of tools. On the one hand, it provides easy access to important information and indispensable applications. On the other, the NA (Notification Area) is often a hiding place for unnecessary resource hogs and a prime source of visual clutter. How can you separate the wheat from the chaff? Though you may not realize it, you can control your NA to ensure that it works for you rather than against you.

■ **Easy Does It.** The intended purpose of the NA is to give users fast and easy access to settings and programs. Do you really want to dig into the Sounds And Audio Devices area of the Control Panel just to adjust your volume? Isn't it much easier to have the speaker icon right there on your screen? The NA also serves (as the new name denotes) as a way for your PC to notify you of the status of various activities or services. For example, the networking icon appears while you have a dial-up connection. Double-click this icon to see information about your connection. Similarly, a printer icon appears temporarily when you print. You can then click it to access printer queues and settings. Application icons work in a similar fashion. To launch a program that has been hanging out in your NA, just double-click the icon. Many programs also let you manage their Properties by right-clicking their icons. When used properly, the Windows Notification Area can be a valuable tool, making your computer easier to use and helping you get things done more quickly.

■ **Digital Dust Bunnies.** Unfortunately, every useful technology is also subject to misuse. Though several icons in your NA are quite helpful (see the list below for our advice on what to keep and what to toss), many are simply nuisances. Software makers have developed a nasty habit of making their programs launch during startup by default so that they run whenever your PC is on, ready at a moment's notice for your call. They then place an icon in the NA, so you can invoke their already-running application even more quickly. Although this speeds up a program's opening, you pay the price in wasted resources during that 99% of the time when you *don't* need the application. Microsoft has gotten into the act, as well, creating clutter by including icons you may never need and implementing frequent pop-up messages and communications alerts from the NA. Managing your NA is the key to effective use: If you let it get out of control, it can take over your Taskbar and drain system resources.

■ **Manage Your Notification Area.** One of WinXP's improvements on the old System Tray is that the system now automatically hides icons after a period of inactivity, which helps keep your Desktop clean. So, Microsoft has already taken the first step toward managing the NA for you.

Hide icons. As for handling your own NA management activities, start at the Taskbar And Start Menu Properties box, where you can decide whether to show the clock and manage settings for hiding or showing various NA icons. To access the NA's properties, Right-click the Taskbar, choose Properties, and click the Customize button. Then select from each item's drop-down list. If you decide to hide icons (for each one, you can select Hide, Always Show, or Hide When Inactive), you will have a little round button at the top of the NA that lets you toggle between hiding and showing hidden icons.

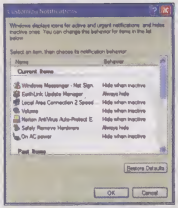
Choose which items to include. Hiding icons will help clear up the clutter, but it won't do much about applications running in the background. And when you do need to use hidden icons, you don't want to have to sift through other, never used, items to find them. Controlling which settings and applications have icons enabled in the first place is your next step. Several Windows settings (such as Volume, Display Properties, and Power Options) let you choose whether to include an NA icon. Many applications, by default, place an icon into the NA on installation. Real Networks products, Winamp, most antivirus programs, and IM (instant messenger) clients are some common examples. You can usually prevent this by performing a custom installation, but you may find it easier just to go back

afterward and remove the icon. Almost all programs give you a choice about their presence in the NA; the trick is to find the option. Most programs have a setting in their Properties or Settings dialog boxes. These are most frequently accessible from a Tools or a File menu (for applications) or the Windows Control Panel (for system settings). Look for wording similar to "Show icon in taskbar." This option toggles the setting back and forth; if you want to add an icon that doesn't appear, simply find the option in Properties or Settings. Often, right-clicking an icon that is already in your NA will display a Properties menu option; finding the setting in that menu is usually the easiest way to remove an item.

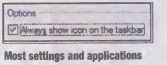
Most of what you will find in your NA can fit into eight categories. We'll explain the purpose of each in turn. Note that Windows Messenger isn't covered here—for more info on using or removing Windows Messenger, see "Maddening Messenger" on page 22 in this issue. Then we'll give you some guidance on the ultimate question for each: Should it stay or should it go?

System settings. The most common Windows settings to appear in your NA are the clock and Volume Control. The clock does more than just give you the time. Double-clicking will open a calendar and let you change time zone and daylight savings settings. And if you occasionally adjust your PC speakers' volume, both of these are keepers. You may also have a Network Connection status icon: If you have a permanent network connection, though, you probably don't need an icon to tell you about it. WinXP's Balloon Tips, however, are another matter. Balloon Tips pop up with reports on system status, notices about upgrades, solicitations for Microsoft Passport accounts, and other reminders. Many users, however, find them simply annoying. You can't disable them easily; you need to tweak the Registry to get rid of Balloon Tips. See Microsoft Knowledge Base article Q307729 (available at http://support.microsoft.com) for instructions, but read "Protect Yourself," beginning on page 32 in this issue, before attempting Registry edits.

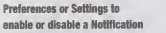
Media players. Other prominent NA residents include icons for the most popular media players. Products from RealNetworks, Apple's QuickTime Player, Winamp, and Windows Media Player are all eager to start when you boot up, so they insert their icons. This makes their applications launch more quickly and gives you easier access to them, but it also means you're wasting resources



Windows XP lets you define which items should be hidden or shown in your Notification Area.



Most settings and applications have an option in their Preferences or Settings to enable or disable a Notification Area icon.



Most Notification Areas, by default, contain a mix of handy and useless icons. Keep anything that you use often or that gives you valuable information. Remove anything you don't use or that isn't helpful.

when you aren't listening or watching. If you find yourself opening and closing your media player constantly, leave the icons. Most of the time, however, you're better off removing the icon and disabling any auto-start options.

Instant messengers. Most IM applications also run in the background and your NA by default. The reason for this is obvious: If you want to chat, you have to have some way to get real-time ongoing information about which of your buddies is online. So if you're ready to chat, or if you just like to be available whenever you're at your PC, leave your IM icon running. If you don't use your IM program regularly, save space and memory by disabling it.

Antivirus tools. Perhaps the most important and useful NA icon is the one that should appear whenever your AV (antivirus) program is running. It should, of course, be running all the time. The icon lets you know that your AV program is working, scanning email and incoming files, and generally watching for malicious activity. If you don't have the icon, you know there's a problem and you're unprotected. Keeping your AV program running also enables automatic updates and scheduled virus scans. If you keep nothing else in your NA, keep your AV icon around.

Application-specific tools. Many programs include their own temporary icons for the NA. Microsoft products, for example, Office XP's Language Bar, make the most frequent use of this. These icons make it easier for users to perform specific tasks or make changes to the application. These are usually harmless if they run only while you're using the program. If they linger afterward, however, you should remove them. Syncing utilities for handheld computers and PDAs (personal digital assistants) also normally keep an icon running.

Power Meter. For notebook users, WinXP's Power Meter is a handy tool. You can keep track of your remaining battery life and tell when you are on AC power and whether your battery is currently charging. To make sure your Power Meter is always on, select Power Options from the Control Panel. Click the Advanced tab and check the box that says Always Show Icon On The Taskbar.

Internet service provider tools. Most ISPs (Internet service providers) install custom software on your machine. The ISP's toolset may include icons that allegedly help you receive updates and access the ISP's services. Normally, they aren't very useful, especially if you don't have an always-on Internet connection. Remove them whenever you can.

Temporary notifications. Quite a few icons come and go only as needed and quietly retreat when they've finished. Prime examples include notifications of new email messages, printing processes, infrared connections, and dial-up status. Though you can sometimes disable these icons from within their respective applications or services, they are normally helpful, so you'll probably want to leave them.

■ **You're In Charge Here.** The Notification Area of WinXP can be a mixed bag. If you let it get out of control, you can easily find your Taskbar overrun by clutter and your PC bogged down by applications you don't even intend to use. But if you learn to control your NA, it can be a valuable resource, providing quick information and easy-to-use shortcuts. LS

by Gregory Anderson

YOU'VE GOT TO SEE IT IN EPSON COLOR

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Maddening Messenger

You Can Dump Windows Messenger

WM (Windows Messenger) can be a real nuisance. It appears, uninvited, in your Windows XP Notification Area (formerly known as the System Tray), flashes messages at you, and just won't go away. Unless you are an inveterate instant messenger or appreciate knowing about every piece of spam that hits your Hotmail inbox, you'll probably want to throw it out at some point.

Helpful Tool Or Intrusive Pest? In theory, WM is supposed to give you easy access to a host of helpful communications tools (all made available, naturally, by Microsoft). A more cynical analysis would conclude that WM exists to draw the whole world into creating Microsoft Hotmail, .NET Messenger, and Passport accounts. Whatever your perspective, some people will fall in love with WM and others will want to ditch the tool as fast as they can. If you appreciate instant notification every time you receive a Hotmail message or whenever one of your chat buddies logs in, and if you really want to keep your IM (instant messaging) client running all the time, you'll find WM a good match. If, on the other hand, you don't have (or want) a Hotmail account, don't chat your day (or night) away, and have no interest in using Microsoft's other communication tools, you can remove Windows Messenger entirely.

Many users will find themselves somewhere in between. If you like Hotmail and use your contacts list to chat occasionally, but want to avoid the distraction and resource drain of always-on notifications, you can set WM to run only when you tell it to.

By default, WM launches when your PC boots up and will continue to run in the background even when you aren't using it. The program will be running and using up resources, but you have to pay close attention to the Notification Area to realize that WM is running. You can disable these and other settings, making WM run only when you decide to launch it. Open WM (double-click the Notification Area icon or launch it from your Start menu), click the Tools menu, choose Options, and select the Preferences tab. Uncheck both Run This Program When Windows Starts and Allow This Program To Run In The Background. You can then launch the application from Programs in your Start button. When you want to close the application, right-click the Notification Area icon and choose Exit from the menu. (Note that simply clicking the *X* in the Close box won't actually close WM; it just minimizes it.)

If you want to get rid of the program altogether, you may have already noticed it is not present in the Control Panel's Add/Remove Programs area. So how do you uninstall something that's not actually there? It's not as easy as it should be, but it is possible.

A word of warning first: Permanently getting rid of WM involves a Registry edit. The Windows Registry acts as the operational guts of Windows. If you make a mistake, or if you edit the wrong entry, you can do serious damage to your system, even rendering Windows inoperable. Before making any changes to the Registry, check out "Protect Yourself," beginning on page 32.

Once you're comfortable with this process and you've backed up your Registry, select Run from the Start menu.

1. Type **regedit.exe** in the text box to launch the Registry Editor utility.
2. In the Regedit listing, expand the HKEY_LOCAL_MACHINE folder and drill down to Software\Policies\Microsoft.
3. From your Edit menu, select New and Key.
4. Type **Messenger** as the name of the new entry.
5. With your new Messenger key selected, again access your Edit menu, click New, and select Key again.
6. Type **Client** as the name of the new key. The Client key should nest beneath the Messenger key.
7. Again, with the newly created Client key selected, click Edit, New, and DWORD Value from the menu.
8. Type **PreventRun** for this value. A new item should appear in the area on the right with the name PreventRun and of the type REG_DWORD.
9. Right-click PreventRun and select Modify from the context menu.
10. In the Value Data field in the box that opens, change the "0" to a "1." Click OK.
11. Close the Registry Editor and reboot your machine.

Windows Messenger's constant notifications can be a blessing or a curse, depending on your point of view.

You may still find WM in your Programs List, although it shouldn't run; simply right-click the item and select Delete to remove the now-defunct entry.

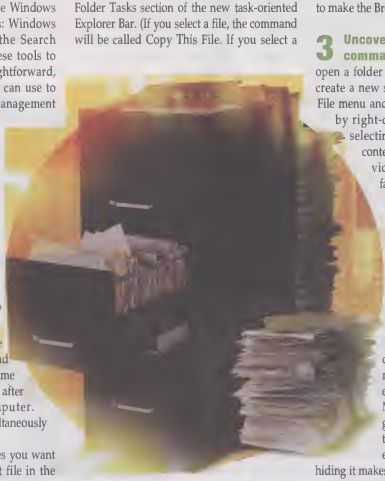
Breaking Up Is Hard To Do. Hard-core chatters and those who want to keep on top of their Hotmail at all times may find WM good to have around. Others, however, often seek a way out. You may prefer to let WM down easy by simply disabling its autostart and background options. You may, on the other hand, want to go about it the hard way and make a clean break to remove all signs of the soured relationship. Microsoft sure isn't helping out, but who ever said that breaking up was supposed to be easy? LS

by Gregory Anderson

File Fundamentals

Top 15 File Management Tips

When you sit down to use your computer, chances are you'll spend some of your time locating, copying, deleting, and otherwise organizing your files. To do so, you'll use Windows XP's basic file management tools: Windows Explorer, My Computer, and the Search Companion. Although using these tools to manage your files is pretty straightforward, there are a number of tricks you can use to make quick work of your file management tasks. You can even customize certain features to make them easier to use. Here are 15 tips that will help you get the most out of WinXP's file management tools.



1 Simultaneously rename multiple files. When you work with groups of similarly-named files, chances are good you'll eventually want to rename all the files. For example, if your digital camera saves picture files using a sequential naming scheme such as PIC263.JPG, PIC264.JPG, and so on, you'll probably want to rename them with more meaningful names after you transfer them to your computer. Fortunately, WinXP lets you simultaneously rename groups of files.

To begin, select the group of files you want to rename; right-click on the first file in the group and select Rename. Then, type the new name along with the number 1 in parenthesis. For example, you might rename this first file Birthday (1).JPG. When you press ENTER, each of the selected files will be renamed with the new name and the number in the parentheses will be incremented sequentially. In this case, the result would be Birthday (1).JPG, Birthday (2).JPG and so on.

2 Use the Move This and Copy This commands. If you regularly move or copy files and folders on your hard disk, you'll definitely want to get into the habit of using the Move This and Copy This commands, as they can be real timesavers. When you open any folder in Windows Explorer and then select a file or a folder, you'll see the Move This and Copy This commands in the File and Folder Tasks section of the new task-oriented Explorer Bar. (If you select a file, the command will be called Copy This File. If you select a folder, the command will instead be called Copy This Folder.)

When you use the Move This or Copy This commands, you'll see a browse dialog box and can easily select a destination. You can even create a new folder for the destination by clicking the Make New Folder button.

If you prefer, you can add these handy file management features to the toolbar. To do so, right-click the toolbar, select Customize, and use the controls in the Customize Toolbar dialog box to add the Move To and Copy To buttons to the toolbar.

Having difficulty traversing a tightly nested folder tree in the Browse dialog box? No problem. Just position your pointer over the handy resize pad in the bottom-right corner; when you see a double-headed arrow, you can drag to make the Browse dialog box larger.

3 Uncover the Make A New Folder command. As you know, when you open a folder in Windows Explorer, you can create a new subfolder by pulling down the File menu and selecting New, then Folder, or by right-clicking inside the folder and selecting New, then Folder from the context menu. However, WinXP provides you with a new and even faster way to create new folders.

When you first open a folder in Windows Explorer, you'll find that the File And Folder Tasks section of the new task-oriented Explorer Bar already contains the Make A New Folder command. However, as soon as you select any file or folder, the list in the File And Folder Tasks section changes to show you other commands related to managing existing files and folders and the Make A New Folder command gets hidden from view. This is too bad, because it's already easy to forget this command; hiding it makes it that much easier to forget.

Fortunately, you can easily uncover the Make A New Folder command by clicking anywhere in the folder to clear the currently selected item. As soon as you do, the File and Folder Tasks section will again display the Make A New Folder command. You can then effortlessly create a new folder with one click.

4 Gain access to Full Screen view in Windows Explorer. If you need more room to work in Windows Explorer, chances are you click the Maximize button to expand the window. However, you can get even more workspace by activating the hidden Full Screen

feature (similar to the one in Internet Explorer) by pressing F11. If the task-oriented Explorer Bar is enabled when you activate the Full Screen view, it will remain in the window. However, if you're using any of the other Explorer Bars, such as Folders or Search, when you activate Full Screen view and then click anywhere in the window, the Explorer Bar will slide out of view giving you even more room to work. To bring the Explorer Bar back into view, just move your mouse over the left edge of the screen. To return the screen to normal size, simply press F11 again.

If you need to access the toolbar, just move your mouse over the top of the screen and the toolbar will drop down.

Show In Groups adds a whole new dimension to the way you can look at your files.

5 Take advantage of the Show In Groups feature. When you launch Windows Explorer, you can display files using one of WinXP's five default views: Tiles, Icons, List, Details, or Thumbnails. To alternate among these views, you can click the Views button on the toolbar or pull down the View menu. If you use the View menu, you can further organize the display by selecting one of the four sort options on the Arrange Icons By submenu: Name, Size, Type, or Modified. If you're using any of the default views other than List (a minor bug in WinXP), you'll find a new sort option on the Arrange Icons By submenu called Show In Groups, which adds a whole new dimension to the way you can look at your files.

When you select the Show In Groups option, the Windows Explorer display will be divided into sections with headers that correspond to the sort option you've selected. Your files will then be organized under these headings accordingly. For example, if you're using the Name sort option, you'll see alphabetic headers A, B, C, and so on, and your files will be grouped under the appropriate headers. If you're using the Details view, you can change the Show In Groups option simply by clicking on the various column headers.

6 Password-protect files stored in compressed folders. In addition to conserving hard drive space, the Compressed Folders feature offers you the ability to protect confidential files with passwords. After you create a compressed folder and add files to it, open the folder, pull down the File menu, and select Add A Password. When you enter a password, WinXP assigns that password to every file currently in the compressed folder.

Once you've password-protected your compressed folder, you can double-click on the compressed folder and open it just as you could before. However, when you attempt to access any file in the compressed folder, you'll be required to enter the password.

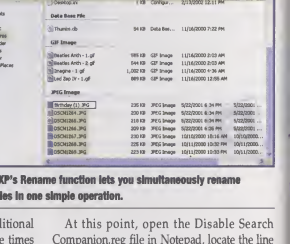
It's important to keep in mind that if you add other files to a password-protected compressed folder at a later date, those files *won't* automatically be password-protected. In order to password-protect new files, you'll need to first remove the existing password and then reapply it. To do so, pull down the File menu and select Remove Password. You'll then be prompted for the password. Once the password has been removed, you can use the Add A Password feature to reapply the password to all the files in the compressed folder.

7 Roll back the WinXP Search Companion. WinXP's Search Companion comes with a host of new bells and whistles, including an animated character that occasionally offers suggestions, and a number of options that let you fine-tune your search. Although these additional features are generally helpful, there are times when a basic search interface, such as the one found in Windows Me and 2000, is all you really need.

Fortunately, the basic Search interface is still there, buried beneath WinXP's new Search Companion, and you can uncover it with slight registry tweak. However, rather than abandoning the Search Companion altogether, you might find it useful to be able to switch back and forth between the two as your search needs change. You can do so by creating a couple of Registry (REG) files. (Remember, though, that tweaking the Windows Registry is dangerous. Be sure to see "Protect Yourself," beginning on page 32, for information about how to back up the Registry before making this or any other change to the Registry.)

To begin, launch the Registry Editor by accessing the Run dialog box, which you can do quickly with the Windows-R shortcut, and typing **regedit** in the Open text box. After you see the Registry Editor, follow the path to the CabinetState key: Go to HKEY_CURRENT_USER, Software, Microsoft, Windows, CurrentVersion, Explorer, then CabinetState

Once you open the CabinetState key, right-click inside the key and select New, String, then Value. When the value appears in the key, name it **Use Search Asst**, press ENTER twice, type **no** (all lowercase) in the Value Data text box, and click OK. Now, right-click the CabinetState key and select Export. In the Export Registry File dialog box, type **Disable Search Companion** in the File Name text box, make sure the Selected Branch option button is selected, and click the Save button. Then close the Registry Editor.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DSCN1269.JPG 223 KB JPEG Image 10/11/2000 10:03 PM 10/11/2000...

Tip 1. WinXP's Rename function lets you simultaneously rename multiple files in one simple operation.

At this point, open the Disable Search Companion.reg file in Notepad, locate the line "Use Search Asst"="no" and change the value inside the quotes to yes. (Again, be sure to use all lowercase letters.) Save the file as Enable Search Companion.reg.

You can now switch between the Search Companion and Search simply by double-clicking the appropriate file. The changes these files make are instantaneous, so there's no need to reboot.

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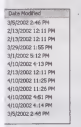

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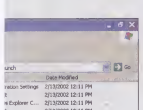
REG files. (Again, tweaking the Windows Registry is dangerous, so be sure to see "Protect Yourself," beginning on page 32, for information about how to back up the Registry before changing anything.)

To begin, launch the Registry Editor by accessing the Run dialog box (you can use either the Start menu or the Windows-R shortcut) and typing **regedit** in the Open text box. Then, follow the path to the DelegateFolders key: Go to HKEY_LOCAL_MACHINE, SOFTWARE, Microsoft, Windows, CurrentVersion, Explorer, My Computer, NameSpace, DelegateFolders.

Once you open the DelegateFolders key, right-click the subkey entitled {59031a47-3f72-44a7-89c5-5595fe6b30ee} and select Export. In the Export Registry File dialog box, type **Add Shared Documents** in the File Name text box; make sure the Selected Branch option button is selected in the Export Range panel, and click the Save button. Close the Registry Editor.

Now, locate the Add Shared Documents.reg file, open it in Notepad, and add a minus sign (-) to the beginning of the key name, right inside the square brackets. Then, save the file as Remove Shared Documents.reg.

Now, when you want to remove the Shared Documents folders from My Computer, you can just double-click the Remove Shared Documents.reg file. If you later want to replace the Shared Documents folders in My Computer, double-click the Add Shared Documents.reg file. The changes these REG files make are instantaneous, so there's no need to reboot.



Again, keep in mind that when you double-click either of these REG files, the Registry Editor displays two dialog boxes—one prompts you to confirm the operation and the other lets you know the operation was successful.

a detail and click the Show and Hide buttons. Furthermore, you can change the order in which the column headers appear in the Details view by selecting a detail and using the Move Up or Move Down buttons. You can then specify how wide a column should be by selecting the detail and typing a numeric value in the Width Of Selected Column text box.

Tip 8. Adding a New Folder button to the Quick Launch toolbar provides a quick and easy way to create new folders on your hard drive.

11 Use custom folder icons. When you're storing files in My Documents, chances are you create folders and use them to keep your documents organized by topic. When you do so, you label each of these folders with an appropriate name that will help you to identify the contents.

feature (similar to the one in Internet Explorer) by pressing F11. If the task-oriented Explorer Bar is enabled when you activate the Full Screen view, it will remain in the window. However, if you're using any of the other Explorer Bars, such as Folders or Search, when you activate Full Screen view and then click anywhere in the window, the Explorer Bar will slide out of view giving you even more room to work. To bring the Explorer Bar back into view, just move your mouse over the left edge of the screen. To return the screen to normal size, simply press F11 again.

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options that let you fine-tune your search. Although these additional features are generally helpful, there are times when a basic search interface, such as the one found in Windows Me and 2000, is all you really need.

Fortunately, the basic Search interface is still there, buried beneath WinXP's new Search Companion, and you can uncover it with slight registry tweak. However, rather than abandoning the Search Companion altogether, you might find it useful to be able to switch

At this point, open the Disable Search Companion.reg file in Notepad, locate the line "Use Search Asst"="no" and change the value inside the quotes to yes. (Again, be sure to use all lowercase letters.) Save the file as Enable Search Companion.reg.

You can now switch between the Search Companion and Search simply by double-clicking the appropriate file. The changes these files make are instantaneous, so there's no need to reboot.

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Keep in mind that when you double-click either of these files, the Registry Editor displays two dialog boxes: One prompts you to confirm the operation and the other lets you know the operation was successful.

8 Add a New Folder button to the Quick Launch toolbar.

If you want a quick and easy way to create new folders, you can add a New Folder button to the Quick Launch toolbar. To do so, launch Windows Explorer and open the C:\Documents and Settings*Username*\Application Data\Microsoft\Internet Explorer\Quick Launch folder, where *Username* is the name assigned to your account on the system. Once you open the Quick Launch folder, create a new folder inside of the Quick Launch folder and leave it named New Folder. At this point, you'll see a new icon on your Quick Launch toolbar, entitled New Folder. (You may have to expand the Quick Launch toolbar.)

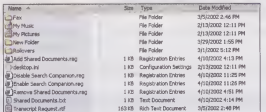
Now, whenever you want to create a new folder, just hold down the CTRL key as you drag and drop the New Folder icon wherever you want to create the new folder.

9 Customize Windows Explorer's Details view.

When you use Windows Explorer's Details view to display your files, the column headers can come in real handy as you're analyzing and managing your files. Fortunately, WinXP provides you with the ability to add, remove, and rearrange the various column headers to better fit your needs.

To do so, pull down the View menu and select Choose Details. When you see the Choose Details dialog box, you'll find that you can add and remove column headers by selecting or clearing the checkboxes. You can also select a detail and click the Show and Hide buttons. Furthermore, you can change the order in which the column headers appear in the Details view by selecting a detail and using the Move Up or Move Down buttons. You can then specify how wide a column should be by selecting the detail and typing a numeric value in the Width Of Selected Column text box.

In addition to accessing the Choose Details dialog box, you can add and remove column headers by right-clicking on any header to display the Choose Details context menu and then selecting a header name from the list—a check mark indicates which headers are currently in use. If you like, you can also rearrange the headers by selecting a header and dragging it to the right or the left.



Tip 4. Using WinXP's Full Screen view in Windows Explorer gives you more room to work.

10 Add and remove shared documents from My Computer.

When you open My Computer, you'll notice that the display includes all the Shared Documents folders on the system. Although the Shared Documents feature is designed to make it easy for you to share files with other users on the same system, the presence of these Shared Documents folders in My Computer can be distracting when you're performing file management operations. If you'd like to be able to turn the Shared Documents folders display on and off, you can do so by creating a couple of REG files. (Again, tweaking the Windows Registry is dangerous, so be sure to see "Protect Yourself," beginning on page 32, for information about how to back up the Registry before changing anything.)

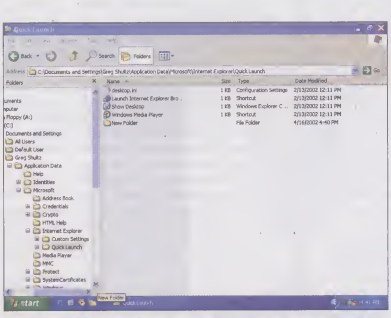
To begin, launch the Registry Editor by accessing the Run dialog box (you can use either the Start menu or the Windows-R shortcut) and typing **regedit** in the Open text box. Then, follow the path to the DelegateFolders key: Go to HKEY_LOCAL_MACHINE, SOFTWARE, Microsoft, Windows, CurrentVersion, Explorer, My Computer, NameSpace, DelegateFolders.

Once you open the DelegateFolders key, right-click the subkey entitled {59031a47-3f72-44a7-89c5-5595fe6b30ee} and select Export. In the Export Registry File dialog box, type **Add Shared Documents** in the File Name text box; make sure the Selected Branch option button is selected in the Export Range panel, and click the Save button. Close the Registry Editor.

Now, locate the Add Shared Documents.reg file, open it in Notepad, and add a minus sign (-) to the beginning of the key name, right inside the square brackets. Then, save the file as Remove Shared Documents.reg.

Now, when you want to remove the Shared Documents folders from My Computer, you can just double-click the Remove Shared Documents.reg file. If you later want to replace the Shared Documents folders in My Computer, double-click the Add Shared Documents.reg file. The changes these REG files make are instantaneous, so there's no need to reboot.

Again, keep in mind that when you double-click either of these REG files, the Registry Editor displays two dialog boxes—one prompts you to confirm the operation and the other lets you know the operation was successful.



Tip 8. Adding a New Folder button to the Quick Launch toolbar provides a quick and easy way to create new folders on your hard drive.

11 Use custom folder icons.

When you're storing files in My Documents, chances are you create folders and use them to keep your documents organized by topic. When you do so, you label each of these folders with an appropriate name that will help you to identify the contents.

However, after a while you may discover that you have so many folders that it's difficult to quickly locate those folders you use most often. Fortunately, WinXP lets you customize each individual folder by changing its icon. By doing so, you can make it easier to distinguish those folders you use on a regular basis.

To get started, right-click on the folder and select Properties. When the folder's Properties dialog box appears, select the Customize tab. Then, click the Change Icon button at the bottom of the tab. You'll then see the familiar Change Icon dialog box you can use to select any icon you wish to assign to the folder.

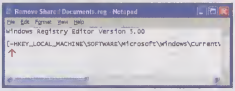
12 Configure the My Computer icon to open in Windows Explorer mode.

When you launch My Computer from the Start menu, the default display opens using the new task-oriented Explorer Bar. Although this Explorer Bar provides you with some very handy file management features, more often than not, what you really need access to when you launch My Computer is the Folders Explorer Bar. Of course, you can always click the Folders button after you open My Computer, but wouldn't it be more convenient to have My Computer open in Windows Explorer mode by default? Fortunately, you can easily configure My Computer to do so.

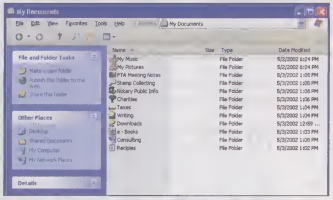
Launch My Computer, pull down the Tools menu, and select Folder Options. When you see the Folder Options dialog box, select the File Types tab. In the Registered File Types pane, select the icon entitled (NONE) Folder, and click the Advanced button near the bottom of the dialog box. When you see the Edit File Type dialog box, select Explore from the Actions list, and click the Set Default button. To complete the operation, click OK to close the Edit File Type dialog box and then click Close to exit the Folder Options dialog box.

13 Rearrange the My Computer and Windows Explorer toolbar layout.

By default, the My Computer and Windows Explorer toolbar layout consists of three toolbars stacked on top of each other. Although all these toolbars are necessary, this layout wastes a lot of valuable screen real estate. If you look closely, you'll notice that neither the Standard Buttons toolbar nor the Address Bar toolbar really use the full length of the window. As such, more than half of each of these toolbars can be considered wasted space. Fortunately, you can combine these two toolbars to easily reclaim this wasted space.


Remove Share Documents.reg - Notepad
File Edit Format View Help
Windows Registry Editor Version 5.00
[-HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentV

Tip 10. To create the Remove Shared Documents.reg file, simply add a minus sign (-) to the beginning of the key name.



Tip 13. Customizing the toolbar layout enables you to make much more efficient use of the available space.

To begin, you'll need to unlock the toolbars by right-clicking any one of the toolbars and deselecting Lock The Toolbars to disable it. As soon as you do, you'll notice that handles appear at the left edge of each of the toolbars. Now, click on the Address Bar toolbar's handle, drag it to the center of the Standard Buttons toolbar, and position it just to the right of the Help menu. When you release the mouse button, the Address Bar and Standard Buttons toolbars basically merge to become one toolbar that actually uses the full length of the window.

You can clean up the toolbar layout even more by reducing the amount of space that the Standard Buttons toolbar uses and removing the Go button from the Address Bar toolbar. To do so, right-click the Standard Buttons toolbar and select Customize. Then, in the Customize Toolbar dialog box, select No Text Labels and Small Icons; then click Close. Now, right-click the Go button and deselect Go Button to disable it.

To complete the operation, right-click on any one of the toolbars and select Lock The Toolbars to enable it. (Keep in mind that any changes you make to the My Computer and Windows Explorer toolbar layouts will also appear in IE, as they share the same basic interface settings. Generally, you can't change one without changing the other.)

14 Put the file management tools back on the desktop.

Ever wish that the WinXP desktop included the My Computer, My Documents, and My Network Places icons, like the previous versions of Windows did? If so, you'll be glad to know you can easily put them back. To do so, right-click the Desktop and select Properties. When the Display Properties dialog box appears, select the Desktop tab, and click the Customize Desktop button. When you see the Desktop Items dialog box, just select the appropriate checkboxes in the Desktop Icons panel.

15 Don't forget to investigate the Advanced Settings feature.

If you want to explore other ways you can you can customize the My Computer and Windows Explorer interface, you'll want to take a look at the Advanced Settings feature. To do so, pull down the Tools menu and select Folder Options. When you see the Folder Options dialog box, select the View tab. You can then use the checkboxes and radio buttons in the Advanced Settings list box to enable or disable all kinds of settings. Although most of the settings are self explanatory, some are a bit cryptic. To learn more about any of these advanced settings, click the question mark icon in the title bar and then click the setting. When you do, you'll see a pop-up box that contains a detailed description of the setting. If you make changes and then later want to restore the original settings, just click the Restore Defaults button.

■ **Knowing The Ins & Outs.** There's no way around it: You're going to spend a lot of time managing your files. Knowing the ins and outs of WinXP's file management tools will help you make quick work of arranging and keeping track of the files on your hard drive. LS

by Greg Shultz

Top 19 Operating System Tips

Become Master Of Your OS Domain

Sure, even grizzled PC cynics ended up loving Windows XP. Microsoft seems to have addressed a host of longstanding user peeves in the most recent iteration of its OS (operating system), which is not to say that there isn't always room to tweak something here and there. In the year since its release, WinXP has spawned scores of standard tips and tweaks. After extensive tweak hunting, we gathered the best, most indispensable system tips, along with a few personal favorites.

1 Disable error reporting. We know that Microsoft has good intentions, but seeing the error-reporting function pop up every time a program crashes or hangs is just plain tedious. You can disable this function with some menu drilling. From the Control Panel, open the Performance And Maintenance category and click the System icon. Below the Advanced tab in the System Properties dialog box, look toward the bottom for the Error Reporting button. Click it to display its dialog box where you can select the Disable Error Reporting radio button to ditch this function altogether. If you wish, you can leave a check mark in the But Notify Me When Critical Errors Occur checkbox as an added precaution.

You also can become very selective about which programs report errors to Microsoft. If you decide to keep error reporting enabled, you can elect to report only OS problems or program crashes. In addition, you can click the Choose Programs button to report on all programs, only Microsoft programs, or specific programs that you add to the list.

2 Stop Windows Messenger from loading at startup . . . for good. For those of us who don't use Windows Messenger for our instant-messaging tasks, this program is worse than athlete's foot. No matter how often we try to eliminate it from loading itself into the System Tray at startup, it just keeps coming back. Among the many tweaks and Registry hacks we've seen circulating since Microsoft released WinXP, the following tip is the easiest way to keep Windows Messenger dormant.

Launch Outlook Express, open the Tools menu, and click Windows Messenger and Options. In the Options dialog box, choose the Preferences tab, deselect all the checkboxes found here, and click OK. The Windows Messenger icon will disappear from your System Tray immediately and stay away permanently. Keep in mind that installing a particular service update for Outlook Express or WinXP may activate the Windows Messenger options again, but Outlook Express is the place to go to shut it back down.

For another variation of this tip, see "Maddening Messenger" on page 22.

3 Disable startup and System Tray programs. Is your System Tray of programs that load into memory at startup getting so long that it's crowding the Taskbar? Do you really need all those quick access buttons to every feature of your Sound Blaster Live! sound card or media player? The System Configuration Utility provides an easy way to monitor what programs WinXP loads as it starts and disable most of the unnecessary ones.

From the Start menu, click Run to display its dialog box. Type **msconfig** in the field provided. When the System Configuration Utility dialog box opens, choose the Startup tab to find the list of programs. The programs with check marks are the ones that load at startup. Be careful; the programs are not labeled explicitly, so be sure you only deselect the ones you can identify and deem unnecessary. To help identify programs, look in list's Command column to see where each program resides on the hard drive. After you make choices and click the Apply button, the utility will ask for a system reboot to enable the new settings.

If you use the System Configuration Utility frequently, make a Desktop shortcut for it. You can find the program buried at C:\WINDOWS\PCHEALTH\HELPCTR\BINARIES (where C: is the letter assigned to your hard drive). Right-click Msconfig.exe, select Sent To, and click Desktop (Create Shortcut).

For more information, see "New Name, New Functionality" on page 19.

4 Pop those balloons. By default, WinXP displays system update prompts and other reminders Microsoft believes are helpful. Microsoft calls these little varmints Notification Area Balloon Tips, while most of us have our own pet names (mostly rude) for these things.

Ridding your PC of this balloon plague requires a Registry tweak. And we all know what that means: Use extreme caution. Whenever you plan to edit the Registry, you should always back it up first. One wrong move while using the Registry Editor to modify keys and values can create more problems, some of which can be disastrous. For more information about backing up the Registry, see "Protect Yourself" on page 32.

Now, on with our Registry adventure. From the Start menu, select Run to display its dialog box, type **regedit** in the field, and click OK. In the Registry Editor window, expand the tree by clicking each of the following folders and subfolders: HKEY_CURRENT_USER\SOFTWARE\MICROSOFT\WINDOWS\CURRENTVERSION\EXPLORER\ADVANCED. In the right pane, right-click a blank area, and choose New and DWORD Value from the pop-up menu to create a new item. Type **EnableBalloonTips** (as one word, no spaces) to name the item, and then double-click it and set its Value Data to 0. Click OK. You'll need to reboot your system for this Registry change to take effect.

5 Change dual-boot menu order. Many WinXP users like to maintain their old Windows Me or Windows 98 installation on the same computer but on different hard drives or

partitions. This is because some users need Linux and WinXP on their systems, while others prefer the ways in which older Windows OSes work with some hardware peripherals and games, but whatever the reason, the order of the dual-boot menu matters. Why? Because at startup, a dual-boot system presents the user with a boot menu of the OSes available, with one choice always highlighted (usually the last OS you installed sets itself as the highlighted default choice), and the PC will boot into that OS if there is no user input within 30 seconds.

You can change the default OS highlighted in this menu with the System Configuration Utility (Msconfig.exe). Open the Run dialog box from the Start menu, type **msconfig**, and click OK (or, if you followed our previous tip, use your Desktop shortcut to open the System Configuration Utility). Choose the Boot.ini tab to see the raw contents of your Boot.ini file. Highlight the line containing the OS you want to set as the default and click the Set As Default button.

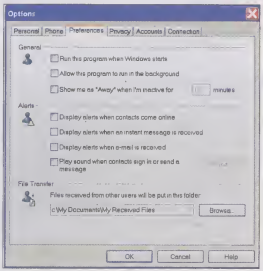
The Timeout setting in the field below (on the right side) determines how long the boot menu stays on-screen before automatically booting to the default OS. You can change the 30-second default setting by clicking in the field and typing a different number.

Click Apply and OK to save your changes.

6 Hibernate on command. The hibernation mode puts your PC into a deep sleep, shutting down the system after saving everything currently in memory to the hard drive. When you reboot, this saved state should be restored to wherever you left off working.

To force WinXP into hibernation, open the Start menu and click Turn Off Computer to display the Turn Off Computer window. Pressing the SHIFT key will change the Stand By button to a Hibernate button, which you can click to use this mode. The system will then save data to your hard drive and shut down. Restarting the machine will bring you back to the PC's previous state. Well, maybe. Many PCs are set up with the hibernation mode disabled. So, if the SHIFT key trick doesn't work with your Turn Off Computer window, you need to enable hibernation. Open the Control Panel, click the Performance And Maintenance category, and click Power Options. In the Power Options Properties dialog box, choose the Hibernate tab, and select the checkbox next to Enable Hibernation. Click Apply and OK to save your changes and close the dialog box.

That should do it, but be forewarned: Hibernation is a touchy mode, and our test machines had varying levels of success with it. Some PCs will declare a conflict with particular hardware drivers. One of our PCs regularly reported that the hibernate data was corrupt and failed to reload it. The best bet is to test this mode out a few times with nonvital data to see how your hardware configuration handles things.



You can permanently prevent Windows Messenger from loading at startup by opening Outlook Express' Options dialog box and deselecting the Run This Program When Windows Starts checkbox.

7 Uninstall WinXP components. WinXP seems to install a host of utilities and programs that we never use, but the OS won't let us uninstall them. Why, oh, why won't Microsoft let us ditch its infernally bad 3D Pinball game, for example? In reality, you can uninstall many of these irritating extras from WinXP, but a specific file with an .INF extension is hiding them from your Add Or Remove Programs utility.

To solve this problem, open Windows Explorer, and find C:\WINDOWS\INF (where C: is the letter assigned to your hard drive). Open the Inf folder and display the Sysoc.inf file in Notepad. Below the [Components] section, you will find listings, some in abbreviated form, for Terminal Server, Auto Update, MS WordPad and, yes, Pinball. Look for the word "HIDE" toward the end of the command string for each component. If it is present, your system is hiding that component from the Add Or Remove Programs utility.

Delete HIDE from each component's command string to make the component appear in the Add Or Remove Programs utility. Take note that a comma separates each of the commands in a string. You should preserve all the commas even after deleting HIDE, so that two commas now precede the final item in the string. You can also use the find/replace command in Notepad (select Replace from its Edit menu) to eliminate all the HIDE commands and make every WinXP component visible for uninstallation. Just be sure to save your Sysoc.inf file before closing the Notepad window.

To see the results of your handiwork, open the Control Panel and click the Add Or Remove Programs category. From the menu on the left side of the window, click Add/Remove Windows Components to see all of the items you have now "unhidden." Deselecting the checkbox next to an item and clicking the Next command will direct WinXP to uninstall that program.

For example, if you decided to "unhide" Pinball when you edited the Sysoc.inf file, go ahead and highlight the Accessories And Utilities listing and click the Details button. Then, highlight Games and click the Details button. Here, you'll find Pinball. Deselect the checkbox next to the listing, click Next, and the Windows Components Wizard will uninstall Pinball.

8 Lock your PC in one keystroke. If you want to lock your computer when you leave your desk, you need to change WinXP's default setting for Fast User Switching. Open the Control Panel and click the User Accounts category. Click the Change The Way Users Log On Or Off listing to display your options. Deselect the checkbox next to Use Fast User Switching and click Apply Options. All you need to do from here is hold down the Windows function key and press L. This locks the computer and displays a logon window that prompts you for a password to unlock things.

However, like most people, you probably installed WinXP without a logon password. If so, this makes the lock function worthless because without a password, all it takes is pressing the ENTER key to unlock your PC. Go back to User Accounts in the Control Panel and click Change An Account. Click

whichever account you need to change, then click Create A Password to assign and confirm a password.

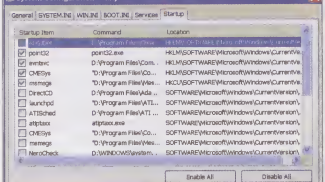
9 Total control. The little-known Group Policy Editor, only found in WinXP Professional, gives the administrator of a single PC or network of multiple PCs absolute power over just about any aspect of how the PCs behave. This includes who has access to what, as well as which icons and WinXP processes are available to whom.

To access the Group Policy Editor, click Run from the Start menu, type **gpedit.msc** in the field, and click OK. There are too many options in the Group Policy Editor to detail here, but an extensive Help file walks you through its features. For example, Group Policy Editor lets you alter the behavior of Internet Explorer so users cannot do things such as save Web pages, use the search function, or mess around with the toolbar. Likewise, the program can hide Control Panel icons to prevent users from tweaking a system. The Group Policy Editor is for advanced users only, but it is truly a control freak's fantasy come true. Bwa-ha-ha!

10 Clean up the Add Or Remove Programs utility. There is something uniquely frustrating about having the Add Or Remove Programs utility cluttered with program names that linger long after you've scotched them from your hard drive. Deleting a program from a hard drive without uninstalling it formally usually is the cause, but what is the solution? The solution lies in the Registry.

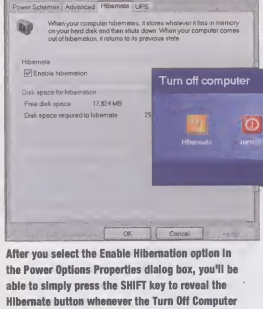
(NOTE: As we mentioned previously, be careful while editing the Registry and always back it up first. If you don't, you and your system may suffer the consequences later. For more information about backing up the Registry, see "Protect Yourself" on page 32.)

To delete these orphaned listings, open the Registry Editor by clicking Run from the Start menu and typing **regedit** in the field. In the left pane, find HKEY_LOCAL_MACHINE\SOFTWARE\MICROSOFT\WINDOWS\CURRENTVERSION\UNINSTALL. Expand the tree beneath Uninstall to find all the listings in your Add Or Remove Programs utility. Simply right-click the orphaned entry in the left pane and select Delete.



Use the System Configuration Utility to determine which programs automatically load when your system starts.

11 Change Web text sizes on the fly. Do some Web sites use impossibly small typefaces that strain your aging eyeballs? Or do some sites fill your screen with headlines that make you scroll endlessly for further details? If you have a wheel-type mouse and use Internet Explorer, put the cursor over the frame of the Web page you are viewing, hold down the CTRL key, and scroll back and forth. This enlarges and shrinks the typeface size. Take note that this trick behaves oddly on Web pages with multiple frames. It usually affects only the frame beneath the mouse cursor.



After you select the Enable Hibernation option in the Power Options Properties dialog box, you'll be able to simply press the SHIFT key to reveal the Hibernate button whenever the Turn Off Computer window displays on-screen.

While we're playing with the scroll wheel in IE, try the following shortcut for the Back and Forward buttons: Hold down the SHIFT key and move the scroll wheel toward you to go to the previous Web page and move the scroll wheel away from you to replicate the forward command. Each click of the wheel equals another page, so scrolling three clicks is the same as clicking your Back or Forward button three times.

12 Sort the Start menu. After a few months of adding new software to WinXP, the All Programs list probably looks like a chaotic mess. Some newly installed programs end up on the bottom of the list, while others seem to slip themselves into the middle.

To sort the list into alphabetical order, simply right-click any of the programs or folders in the All Programs menu and activate the Sort By Name command. This will reorganize the entire All Programs menu.

13 Launch programs with customized keyboard shortcuts. Keyboard fans, rejoice. You don't need to rely on a mouse to launch your favorite programs. To create customized hotkeys, make a common shortcut icon for any program, right-click the shortcut, and select Properties.

Below the Shortcut tab, place the cursor in the Shortcut Key field, and record the desired keyboard combination using CTRL-ALT-plus any unassigned key. Generally, the number keys are safe to use, but you must avoid using major function keys such as ENTER, TAB, ESC, and the Spacebar.

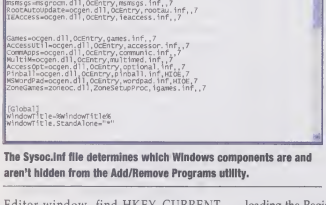
Click the Apply button and your new hotkey should be set. Note that the hotkey is linked to the shortcut icon, so when you delete the shortcut, the hotkey assignment disappears, as well.

14 Goose those sluggish menus. No, it is not your slow PC; the cascading menus and submenus of the Start menu really do have a built-in lag before opening. Perhaps this new, fancy interface of WinXP just likes being fashionably late, but you can

use the Registry Editor to make these menus snap to attention.

(NOTE: Once again, we must warn you to be careful while editing the Registry and to back it up first. Incorrectly editing its contents can wreak havoc on your system. For more information about backing up the Registry, see "Protect Yourself" on page 32.)

Open the Start menu, click Run, type **regedit**, and click OK. From the Registry Editor window, find HKEY_CURRENT_USER\CONTROL PANEL\DESKTOP. In the right pane, double-click MenuShowDelay to display its Values Data field. Change the default value of 400 to 200 (if you want to halve the lag time) or 100 (to further reduce the lag time). Click OK to save your change.



The Sysoc.inf file determines which Windows components are and aren't hidden from the Add/Remove Programs utility.

Please note, however, that there is a functional reason for the menu lag time, so you may not want to set the default value to 0 (to eliminate any lag time). Maintaining some lag time at least lets you mouse over portions of the Start menu on your way to other areas without making all of the submenus pop open instantaneously just by gliding past them. You may find that an intermediate setting of 200 or 100 is a good compromise.

15 Faster boot times. Microsoft has its own downloadable utility that analyzes the time it takes to boot WinXP and optimizes the process in order to shorten it. The easiest way to get the utility is to go to the Microsoft home page (http://www.microsoft.com) and type **bootvis** in the Search field. The top of the results page should give you a direct link to a special Web page dedicated to fast booting as well as a link to the program.

Once you install BootVis.exe, close all open programs and launch BootVis. To analyze the boot process, go to the Trace menu and activate the Next Boot + Driver Delays command. This will give you the option to reboot now or wait to let the program reboot the PC in 10 seconds. After the reboot, leave the system alone until BootVis reappears with its report. This can take several minutes, so don't be alarmed by the wait. In a series of windows, BootVis gives you more information than you wanted, needed, or even understand about the when the drivers loaded, the amount of disk and CPU activity required, and more—just to get your PC up and running.

The top window of the report is a bar chart that illustrates which part of the boot process is loading and at what point it is during the process. Mousing over any of these bars will indicate the process involved (for example, loading the Registry). Scroll to the right to get to a vertical line with a rectangle at the top. This represents the end of the boot process, and mousing over the rectangle will reveal the amount of time your system took to boot. Looking in the Driver Delay window may also reveal the specific drivers that are adding the most time to the boot process. Getting the most recent drivers for hardware components, such as sound and video cards, could reduce your boot time considerably, especially if early versions of the drivers tended to delay the boot process.

Another way to reduce the boot time is to go to the Trace menu and activate the Optimize System command. BootVis will then reboot your PC, and as it restarts, BootVis will move some of the more critical boot files and drivers to a faster portion of your hard drive. Run the BootVis Next Boot command again to see how much time this optimization shaved off of the boot process. According to your system's configuration, the amount of boot time it saves with a BootVis optimization could be anywhere from a second or two to 10 seconds or more.

16 Disable Indexing for faster performance. The Indexing Service is an option many users activate when they perform searches of their hard drive contents. At the search screen, WinXP asks users whether they want to speed future searches by enabling this function, yet many users don't realize this Indexing Services might continue to run in background and eat up performance without their knowledge.

To check up on it, open the Control Panel, click the Performance And Maintenance category, and click Administrative Tools. Double-click Services to display a long list of WinXP services. From this list, highlight Indexing Service. Its Status column describes whether it is active or not. If so, click the Stop The Service link on the upper-left side of this list to disable it.

17 Optimize virtual memory. Like its predecessors, WinXP automatically

Now You're Playing With PowerToys

What does Microsoft's Windows development team do when it isn't coding the next-generation OS (operating system)? It creates nifty little tools for enhancing the power of the current one, of course. Available at its Microsoft PowerToys For Windows XP page (http://www.microsoft.com/windowsxp/pro/downloads/powertoys.asp) are 10 tiny utilities that can change the way the OS looks and feels, how the OS handles task switching, and even create slide shows that users can burn to CD-Rs (CD-recordables) and CD-RWs (CD-rewritables) or convert into HTML (Hypertext Markup Language) pages. Some of these utilities are absolute must-haves.

Tweak UI opens a whole new set of interface options and tweaks for WinXP. Power Calculator includes graphing and conversions. And the Alt-Tab Replacement utility adds thumbnail images to the ALT-TAB task-switching window. So, instead of seeing generic icons of your five open programs when you press ALT-TAB, this utility lets you see what is in each program window to help you find the correct one.

Now, the only question about PowerToys is: Why are you reading this when you should be downloading these gems right now? □

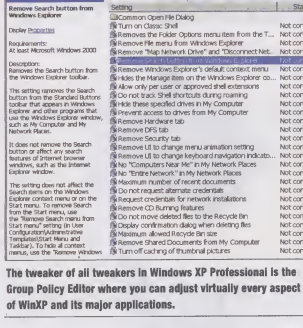
manages **virtual memory**, the way in which data swaps to and from the hard drive when there isn't room for it in memory. In the default mode, Windows expands and contracts the size of the swap file (called a "paging file" in WinXP) as needed, but this process can slow down your machine. Many users have found that forcing WinXP to use a static swap size gives their system faster performance.

To do this, open the Control Panel, click the Performance And Maintenance category, and click System. Below the Advanced tab, find the Performance section and click its Settings button. When the Performance Options dialog box appears on-screen, choose the Advanced tab, and click the Change button from Virtual Memory area.

In the field at the top of the Virtual Memory dialog box, highlight the letter associated with the hard drive where you want to keep your swap file. Then select the Custom Size radio button. The two empty fields beneath this area are where you type in the size of the swap file. The rule of thumb is to make the swap file at least twice as large as the memory installed on the system. So, for a PC with 256MB of system RAM, set both the top and bottom fields to 512 (which will set to 512MB for each). Click the Set button, and you'll receive a message that you must reboot for this tweak to take effect.

18 Make the Desktop snappier. If you find that the Windows Desktop looks and feels sluggish or that particular Web sites in your browser window scroll awkwardly, this could indicate that some of WinXP's cute visual effects are bogging down the video subsystem. Turning off features such as animated window effects, mouse pointer shadowing effects, or smooth-edged text fonts can make the Desktop seem much snappier.

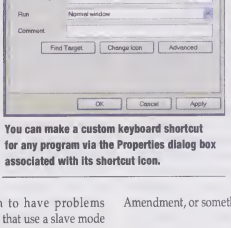
To access these and many other options, open the Control Panel, click the Performance And Maintenance category, and click System. In the System Properties dialog box, choose the Advanced tab and click the Settings button in the Performance section. Below the Visual Effects tab, you can select and deselect checkboxes next to more than a dozen settings. Experiment with some of these changes (one at a time), and click the Apply button to see the effects immediately. The functions that seem to have the most dramatic effect on video performance are: Animate Windows When Minimizing And Maximizing, Show Shadows Under Mouse Pointer, and Smooth Edges Of Screen Fonts.


Windows Explorer
Remove Search button from Windows Explorer
Display: Properties
Requirements: At least Microsoft Windows 2000
Description:
Removes the Search button from the Windows Explorer toolbar.
This setting removes the Search button from the Standard Buttons toolbar that appears in Windows Explorer and other programs that use the Windows Explorer window, such as My Computer and My Network Places.
It does not remove the Search button or other any menus and features of Internet browser windows, such as the Internet Explorer window.
This setting does not affect the Search items on the Windows Search menu or on the Start menu. To remove Search from the Start menu, use the "Remove Search menu from Start menu" setting, in User Configuration\Administrative Templates\Start Menu and Taskbar). To hide all context menus, use the "Remove Windows
Setting
State
Common Open File Dialog
Turn on Classic Shell
Removes the Folder Options menu item from the T...
Remove File menu from Windows Explorer
Remove "Map Network Drive" and "Disconnect Net...
Removes the Search button from Windows Explorer
Remove Windows Explorer's default context menu
Hides the Manage item on the Windows Explorer co...
Allow only per user or approved shell extensions
Do not track Shell shortcuts during roaming
Hide these specified drives in My Computer
Prevent access to drives from My Computer
Remove Hardware tab
Remove DFS tab
Remove Security tab
Remove UI to change menu animation setting
Remove UI to change keyboard navigation indicato...
No "Computers Near Me" in My Network Places
No "Entire Network" in My Network Places
Maximum number of recent documents
Do not request alternate credentials
Request credentials for network installations
Remove CD Burning features
Do not move deleted files to the Recycle Bin
Display confirmation dialog when deleting files
Maximum allowed Recycle Bin size
Remove Shared Documents from My Computer
Turn off caching of thumbnail pictures
Not configur...

The tweaker of all tweakers in Windows XP Professional is the Group Policy Editor where you can adjust virtually every aspect of WinXP and its major applications.

19 Enable DMA. The hard drives and disc drives attached to a system's IDE (Integrated Drive Electronics) ports usually can take advantage of DMA (direct memory access) modes to minimize the load these drives put on the CPU. The end result can be faster performance and the elimination of video and audio glitches, especially with disc drives.

In most cases, WinXP should detect the DMA modes a device has available when the OS is installed, but some drives can be finicky and some pesky programs have been known to disable DMA is order to run more effectively. In fact, WinXP is known to have problems enabling DMA on drives that use a slave mode on the primary or secondary IDE channels.



You can make a custom keyboard shortcut for any program via the Properties dialog box associated with its shortcut icon.

To check and change the DMA setting for your devices, open the Control Panel's Performance And Maintenance category and click System. Below the Hardware tab, click the Device Manager button. From the Device Manager window, double-click IDE ATA/ATAPI Controllers to expand this section. Most computers will have primary and secondary IDE channels available, both of which need to be checked. Double-click one of the channels to display its Properties dialog box. Below the Advanced Settings tab, each device attached to that IDE channel will have its own Transfer Mode field and drop-down menu. Make sure DMA If Available is the setting selected. If you make any changes to the DMA status of a device, Windows will direct you to reboot your system to put the changes into effect.

Don't Stop There. These tips are just your starting points. Microsoft's own PowerToys (see the "Now You're Playing With PowerToys" sidebar) is only one set of many Windows modification tools out there, and after you get the hang of some of these tips, more tips and tools will become apparent to you. Built-in utilities such as the System Configuration Utility and the interface properties menus are downright addicting. And hey, why not? Almost by definition, any iteration of Windows is imperfect, so tinkering with an OS is a democratic right of every modern PC owner (although, in some respects, such as editing your Registry, your OS' warranty won't agree with this). Well, we are pretty sure it's buried somewhere in the Fourth or 12th Amendment, or something like that. LS

by Steve Smith

Protect Yourself

Back Up The Registry First

The whole process seemed so innocent. You only had to change two digits in the Windows Registry to eliminate those nagging registration reminders, so you boldly opened the Registry Editor, changed the digits, closed the editor, and continued working. A few minutes later, Windows froze, and after a reboot, you can't even get back *into* Windows.

No utility in computer history more accurately resembles a wolf in sheep's clothing than the Registry Editor. Although tweaking your Windows environment via the Registry Editor and other methods can be easy, fun, and useful, it's also inherently dangerous. Direct changes to the Windows Registry, as well as system tweaks that modify the Registry behind the scenes, can damage your Windows installation if they're not executed properly.

The Registry is enormously sensitive to changes because it stores the settings and options for all of your hardware and software, as well as for Windows itself. For example, each time you install new software, the Registry typically receives new information regarding the program. Then, when the program is uninstalled using proper uninstallation methods, the same information is removed from the Registry. In addition, if you make changes to your Control Panel settings, the Registry also stores that information. Over time, the Registry becomes jam-packed with data that oversees your entire computing environment.

Most changes to the Registry are performed by programs or system configuration utilities that know what they're doing because they were programmed to properly edit the Registry. However, if you take the place of these programs and utilities and manually edit the Registry to modify Windows according to your preferences, or if you otherwise tweak or change your Windows environment through unconventional means, you better know what you're doing. One mistake could render your current Windows installation unusable. Unless you've properly backed up your Registry, parts of your Registry, or your entire Windows environment, you may be facing a complete reinstallation of Windows.

Although properly backing up the Registry and/or Windows will insulate you from potential trouble, it's easy enough to neglect. After all, the Registry is extremely dense, and it might seem impossible that a small change in a deeply buried Registry key could ruin your entire Windows installation. But guess what? It can and it will, if you're not careful.

Protect Yourself The Microsoft Way.

You can choose any of several precautionary methods before making changes to your system that will affect the Registry. Some of these methods are integrated into WinXP, so we'll discuss those first.

Protection of your Registry using WinXP falls into three basic categories: light, medium, and heavy duty. Each is effective in certain situations, but you'll need to be familiar with the ins and outs of each method to know which one to use.

Light. The light method involves exporting Registry keys (containers of other keys and associated values; in the Registry Editor, keys appear as folders) from the Registry Editor. To use this method, you must know exactly which keys your tweaks will be affecting, and if you're not directly editing the Registry, this could be difficult. Nonetheless, the backup process here is simple.

First, click Start, click Run, type regedit in the Open field, and click OK. Find and highlight (by clicking) the key you'll be editing or the key that will be modified by your tweaks. Click Export from the File menu, and in the Save In drop-down menu, choose a location to save the file. Type a file name in the field below and click Save. To restore this key at any point in the future, simply click (or double-click) the backup file ending in the .REG extension, and the original settings will be restored.

Although technically you could back up a whole Registry hive (a primary root key, such as HKEY_CURRENT_USER, that houses numerous other keys and values) or even the entire Registry using this method, it's not a good idea. One reason is because you could be left with a gigantic backup file (we've seen 50MB Registry backups) that won't do more than consume space if you never need it. More importantly, if you ever *do* need it to restore your Registry, double-clicking this file will likely overwrite much more than you'd like, disabling programs and settings that you installed and configured since the backup.

Medium. The medium protection method is more robust. WinXP's System Restore utility returns your system to a previous state, such as one that existed before you tweaked (and subsequently damaged) your Registry. System Restore won't restore your entire system. Instead, it keeps track of crucial system files, such as your Registry, and creates restore "points" at logical intervals (for instance, before changes occur). You also can set restore points manually, and this method is what you'd use before editing your Registry or tweaking other parts of your Windows environment.

To use System Restore, first you'll need to see if it's turned on. Open the System control panel (click Control Panel from the Start menu and choose the Performance And Maintenance category) and click the System Restore tab. Make sure there's *not* a check mark in the checkbox next to Turn Off System Restore (On All Drives), and that the status for your root drive (where Windows is installed) states *Monitoring*. From this tab, you can also change the amount of drive space available to System Restore (if you allocate more than the 200MB minimum, WinXP may allow for more restore points).

Next, click Help And Support from the Start menu. In the Pick A Task section, click Undo Changes To Your Computer With System Restore, which will launch the System Restore Wizard. Select the Create A Restore Point radio button, click Next, and then type a name

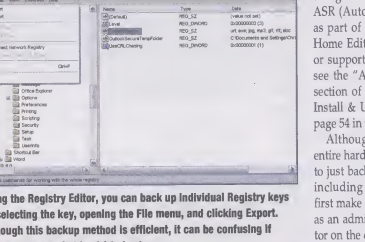
for your restore point in the Restore Point Description field (don't bother including a date and time in your name because the utility automatically adds this information to your restore point name). Click Create to create the restore point.

To restore your computer to a previous state, launch the System Restore Wizard, select the Restore My Computer To An Earlier Time radio button, and click Next. The wizard will present a calendar with restore choices, and once you've chosen a restore point, click Next to implement it. When you click some of the restore points, you'll notice that Windows automatically created restore points for several events, such as program installation.

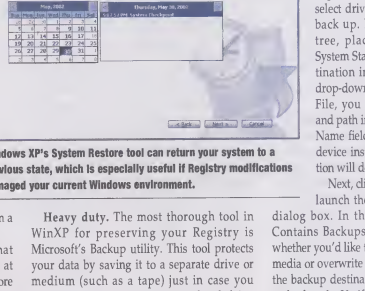
System Restore is handy because, unlike full backups, it doesn't affect your personal files (such as documents, email messages, and your browsing history). It's also a relatively quick and painless process, which is useful if you regularly edit your Registry. On the downside, it's not flawless. Ironically, although it's intended to restore your system to a functional state, it won't function well itself at times (and unfortunately, there's no System Restore *Restore* utility).

For example, if edits to your Registry damaged your current Windows configuration, you can select a restore point to return to a prior state. However, System Restore will sometimes inform you that it can't restore the system, without giving you a reason. Furthermore, the restore process can take an extremely long time—as long as an hour in our tests. And when you're waiting to see whether you can recover from a system disaster, this can seem like days.

Finally, many users have reported that System Restore simply stops functioning at times, neglecting to automatically create restore points. If you configured the utility to create restore points on a regular basis to coincide with your regular tweaks, you may be in for serious trouble if System Restore isn't doing its job. In addition, it's important to remember that by design, System Restore becomes inactive if it doesn't have sufficient drive space (again, 200MB minimum); and even though it will start functioning again when drive space becomes available, all previous restore points will be gone. With this in mind, always manually create restore points if you're using System Restore as your Registry protection method, and always make sure you have enough drive space for the utility to run properly.



Using the Registry Editor, you can back up individual Registry keys by selecting the key, opening the File menu, and clicking Export. Although this backup method is efficient, it can be confusing if you're not sure what key(s) to back up.


System Restore
Select a Restore Point
The following calendar displays in bold all of the dates that have restore points available. The list displays the restore points that are available for the selected date.
Possible types of restore points are: system checkpoints (scheduled restore points created by your computer), manual restore points (restore points created by you), and installation restore points (automatic restore points created when certain programs are installed).
1. On this calendar, click a bold date.
2. On this list, click a restore point.
May, 2002
Thursday, May 30, 2002
< Back
Next >
Cancel

Windows XP's System Restore tool can return your system to a previous state, which is especially useful if Registry modifications damaged your current Windows environment.

Heavy duty. The most thorough tool in WinXP for preserving your Registry is Microsoft's Backup utility. This tool protects your data by saving it to a separate drive or medium (such as a tape) just in case you damaged the Registry or your hard drive fails. If such a failure or damage happens, you can restore the data using the utility's Restore Wizard.

The Backup utility is included with the WinXP Professional installation, but it isn't included in the default installation of WinXP Home Edition. Even so, the WinXP Home Edition CD-ROM does include the Backup utility, and you can install it as part of your hard drive's WinXP installation. Directions for installing the utility can be found online by visiting the following Microsoft Knowledge Base article: http://support.microsoft.com/default.aspx?scid=kb;en-us;Q302894.

Please note, however, that even though WinXP Professional includes ASR (Automated System Recovery) as part of its Backup utility, WinXP Home Edition does not include ASR or support it. For more information, see the "ASR & Recovery Console" section of this article and/or "Find, Install & Use Backup & Restore" on page 54 in this issue.

Although you can back up your entire hard drive, you can also choose to just back up essential system files, including your Registry. To do so, first make sure you have permissions as an administrator or backup operator on the computer. Next, click Start, All Programs, Accessories, System Tools, and then Backup to launch the Backup Or Restore Wizard. Click Advanced Mode and then choose the Backup tab. From the Job menu, click New. Here, you'll see a Windows Explorer-like interface that lets you select drives, files, and/or folders to back up. Below the My Computer tree, place a check mark beside System State. Choose the backup destination in the Backup Destination drop-down menu, and if you choose File, you can choose the file name and path in the Backup Media Or File Name field (if you don't have a tape device installed, the backup destination will default to file).

Next, click Start Backup, which will launch the Backup Job Information dialog box. In the If The Media Already Contains Backups section, you can choose whether you'd like to append the backup to the media or overwrite media that already exists at the backup destination. Next, click Advanced and select the Verify Data After Backup checkbox. You can also select the type of backup you'd like (in the Backup Type area). You can select from Normal, Copy, Differential, Incremental, or Daily, and descriptions for the different types are available when you click them. Finally, click OK and Start Backup. When the backup finishes, click Close.

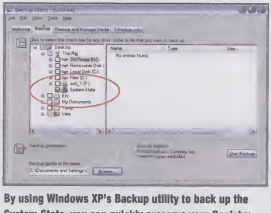
To restore the Registry using the Restore Wizard, again make sure you have permissions as an administrator or backup operator on the computer. When you launch the Backup Or Restore Wizard, click Advanced Mode and the Restore And Manage Media tab. If you're restoring from a backup file, expand file and then expand the backup file itself. If you're restoring from a backup stored on a tape, expand the media name. To restore the Registry (along with other system files), place a check mark in the System State checkbox. In the Restore Files To drop-down menu, choose Original Location. Click Options from the Tools menu, and select Always Replace The File On My Computer. Click Start Restore, and click OK if the following message appears: "Warning: Restoring System State will always overwrite current System State unless restoring to an alternate location."

Then, click OK in the Confirm Restore prompt, and the process will begin. Click Close when it finishes. Restart the computer if prompted.

Although this method is more thorough than the previous methods, it can also be a hassle on two levels. First, the backup process itself can be too time-consuming if you're only tinkering with one part of the Registry. Second, if you do need to restore your Registry, most of your OS (operating system) settings will return to their default settings, so you'll need to reconfigure your Windows environment according to your preferences. Granted, System Restore also will return your environment to a previous time, but at least some of your settings will remain, depending on the restore date you've chosen (if the restore works, of course).

Third-Party Backup Sources. The WinXP protection methods aren't the only guns in town. There are excellent third-party utilities that can preserve your Registry before you do any editing, and some of these are actually easier to use than Microsoft's utilities.

ERUNT (Emergency Recovery Utility NT) is a freeware utility that was designed for one purpose: backing up your Registry. This tool (compatible with WinXP, as well as Windows NT/2000) lets you back up your Registry quickly and easily. ERUNT only saves Registry files that are in use by the system, so the process is extremely efficient and provides a painless way to preserve your Registry before editing it or installing and testing programs. You can download the tool from the utility's home page at http://home.t-online.de/home/lars.hederer/erunt. Plus, the download package includes NTREGOPT, a Registry optimizer.



By using Windows XP's Backup utility to back up the System State, you can quickly preserve your Registry before making any changes.

Super Win Software's WinRescue XP (shareware, $24.95 to register; http://www.superwin.com/findex.htm), provides a multitude of backup and restore options. The program works in a method similar to Microsoft's System Restore in that it takes snapshots of WinXP and restores it to a previous state if a program or Registry modification damaged the system. This tool also includes RegPack, which removes unnecessary Registry content and rebuilds it to decrease the Registry size and increase WinXP efficiency.

ERS (Emergency Recovery System) 2K/XP from Backtec Software backs up vital Windows files, including the Registry. This tool implements Windows 98 MS-DOS files to effectively recover from a corrupt environment. ERS only supports FAT32 (file allocation table, 32-bit)-formatted hard drives and doesn't support NTFS (NT file system). This shareware grants you 30 uses, after which you must register for $25 (http://www.backtec.com/ers2000.htm).

Take The Virtual Route

Imagine being able to try that new Registry tweak on a test computer so that it doesn't screw up your existing WinXP installation. Sounds like a luxury, right? Not necessarily.

Although many of us can't afford second computers for testing our whimsical experimentation with tweaks and program installations, there exists another option that's a little more reasonable: VMware Workstation 3.1 from VMware Inc. ($299 for electronic version, $329 for packaged version; http://www.vmware.com). This program is a **virtual machine**, a software environment that lets you run a completely independent installation of an OS (operating system) within your existing OS.

Virtual machines have existed for many years as test environments for many industries. Throughout the last decade, computer power users have discovered that virtual machines (particularly VMware Workstation) allow them extreme flexibility in their ventures. Because the activity within a virtual machine doesn't affect the host computer whatsoever, you can tweak the OS residing in a virtual machine to the maximum with no ill effects on your *real* system.

Although a virtual machine such as VMware Workstation and your system share certain system components (including drivers) and other resources, you can still create a safe test bed for your experimentation. But at $299, is it worth the price? Because VMware targets the corporate market, its software's functionality runs extremely deep and garners a high price tag. Yet, even at $299, it's cheaper than a semi-powerful second system, and if you're a regular tweaker, you might find the comfort of a virtual machine well worth its price.

Currently, VMware is the only major player in the virtual machine market, although several experimental projects show promise. Unfortunately, most of these serve to emulate Windows in a Linux environment, not Windows within a Windows environment.

You also can extend the concept of virtual machines beyond virtual machines themselves. If you're interested in testing Registry edits and other tweaks in a separate environment, you could install two OSes in a dual-boot configuration. For more information about dual-booting your computer, see "Set Up A Dual-Boot System" on page 58. □

These are just a few of the many utilities you can use to back up your Registry. In fact, you can use any backup software (and there are dozens of titles) preserve your system. Whether you want to perform complete backups each time you edit your Registry might be another story, but backing up your system on a regular basis is always a good idea.

■ **ASR & Recovery Console.** Although the previous methods are the most common for backing up your Registry (or your system state), Microsoft has also included two advanced tools that can help rescue your system in the event that Windows doesn't start at all.

The first of these tools is ASR, which, as we mentioned previously, is integrated with WinXP Professional's Backup utility but is *not* available or supported on WinXP Home Edition. ASR restores all signatures, volumes, and partitions on the hard drive(s) required to start the computer, and then it installs a simplified version of Windows and initiates a backup restoration. Of course, because it restores a backup, you must create a backup beforehand using the Automated System Recovery Wizard, which also creates a handy, save-your-behind floppy diskette in case of emergencies.

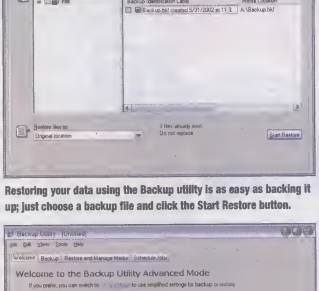
To use ASR, open the Backup Or Restore Wizard and click Advanced Mode. Then, click the Automated System Recovery Wizard button and click Next on the following wizard window. Here, you can select the backup media type (if no tape device is installed, it will default to File) and the backup media or file name. Clicking Next will complete the preparation phase, and when you click Finish on the following wizard window, the wizard will create a backup of your system files. You'll need to insert a diskette afterward. When the process is complete, you'll be able to use this diskette in the future if your system tinkering leaves you unable to boot WinXP.

The next tool Microsoft provides is the Recovery Console, which you also can use if System Restore or backup restores are unsuccessful, or if you can't even boot into Safe Mode. To use the Recovery Console, you have to use basic commands to identify and locate problem drivers and files, which means you'll need to be familiar with general system troubleshooting.

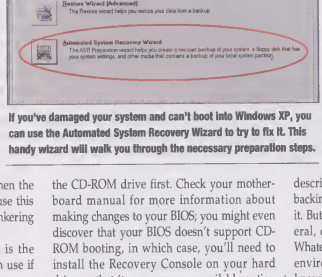
You can access the Recovery Console by booting your computer with the WinXP installation CD-ROM, and when prompted during the text-mode setup, press *R* to launch the Recovery Console. If your computer doesn't boot from the CD-ROM, you'll need to enter your BIOS (Basic Input/Output System) and change your boot configuration so the computer boots from the CD-ROM drive first. Check your motherboard manual for more information about making changes to your BIOS; you might even discover that your BIOS doesn't support CD-ROM booting, in which case, you'll need to install the Recovery Console on your hard drive so that it appears as an available option during the boot phase.

The Recovery Console lets you access your hard drives so you can enable or disable drivers or services, copy files from the installation CD-ROM for the OS to work properly, or copy files from other media. You can also create a new boot sector and a new MBR (master boot record). Because the Recovery Console is a complex tool, you'll need to be familiar with its functions and commands before you delve into it. For a thorough description of its contents, see the following Microsoft Knowledge Base article: http://support.microsoft.com/default.aspx?scid=kb;en-us;Q314058.

Microsoft also outlines a detailed process for using the Recovery Console to recover from a corrupt Registry. However, this process isn't guaranteed to work, and it's extremely detailed. Nonetheless, if you're stuck with no remaining options, give it a try after checking with a related Microsoft Knowledge Base article at http://support.microsoft.com/search/preview.aspx?scid=kb;en-us;Q307545.



Restoring your data using the Backup utility is as easy as backing it up; just choose a backup file and click the Start Restore button.


Backup Utility - [Untitled]
Welcome
Backup
Restore and Manage Media
Schedule Jobs
Welcome to the Backup Utility Advanced Mode
Backup Wizard (Advanced)
The Backup wizard helps you create a backup of your programs and files
Restore Wizard (Advanced)
The Restore wizard helps you restore your data from a backup
Automated System Recovery Wizard
The ASR Preparation wizard helps you create a two-part backup of your system: a floppy disk that has your system settings, and other media that contains a backup of your local system partition.

If you've damaged your system and can't boot into Windows XP, you can use the Automated System Recovery Wizard to try to fix it. This handy wizard will walk you through the necessary preparation steps.

■ **Have A Safe Trip.** If you made it this far, consider yourself unique. Many system tweakers, whether casual or connoisseur, neglect to take precautions before editing their Registry. Some of these people will never experience a problem resulting from the changes they've made, but if they do, then what? Without a proper backup, they could be in serious trouble.

All the methods outlined in this article vary in both their ease and effectiveness. For example, backing up a single Registry key is much quicker than executing a full system backup. Similarly, using System Restore is quicker than launching full backups, but you're not guaranteed a successful restore if you do run into trouble. Your choice should depend on your comfort level and experience with the methods described here. If you find that locating (and backing up) single Registry keys is a breeze, do it. But if you're new to Registry editing in general, consider more hearty backup options. Whatever your choice, modifying your WinXP environment will be much more rewarding knowing that you have a fail-safe plan in store to repair any potential damage. LS

by Christian Perry

Top 15 Registry Hacks

Unlock Numerous Possibilities From WinXP's Core

We've all heard of a mystical friend of a friend who could pick combination locks by feeling the notches click on the inner wheels. Whether fact or fiction, the notion itself was always rather exciting. Windows XP also has a combination lock of sorts, but it's much easier to pick, and as an advanced computer user, you'll find it infinitely more rewarding.

The WinXP Registry stores the options and settings for all of your hardware, software, and Windows itself. Windows and programs automatically create most of these options, which receive the default settings. Unfortunately, default settings don't always provide optimum results performance-wise. Plus, default settings might create a look you're not satisfied with or render various program functions unusable.

Microsoft is aware that changes to the Registry are often a necessity, and its Registry Editor utility provides a simple way to do so. To open the Registry Editor, click Start, select Run, type **regedit** in the Open field, and click OK.

Throughout this article, we'll discuss several of today's most popular Registry modifications. Some of these tweaks will be a blessing, while others may not be appropriate for your Windows environment; we'll leave it up to you to determine which tweaks will work best for your computing needs.

Now for a few words of warning: Editing your Registry is a delicate process. The Registry Editor will do little or nothing to warn you if you're making potential missteps, and moreover, it won't even ask you to confirm or save changes to the Registry—it just does it. Changes to Registry **keys** (containers of other keys and associated values; in the Registry Editor, keys appear as folders in the left pane) and **values** (types of settings) can damage your Windows installation if you do them improperly, so it's imperative that you back up your Registry or the entire Windows environment before proceeding with any of these tweaks. For more information about backing up the Registry, see "Protect Yourself" on page 32.

1 Enable automatic logon. Although many Registry modifications boost convenience, few save as much time and hassle as enabling an automatic logon, especially if you share your computer with other users. By storing your Windows password and other information in the Registry, anyone with physical access to your computer will also have access to your complete Windows environment, including files and folders, as well as any network resources. This could be handy in a home or small office environment, especially if you're not always present to provide the password needed to grant access. It's even useful if you're the only user for several user accounts because entering a password each time you start your system or reboot can be a pain.

But be warned that this tweak will render your computer accessible to anyone around it, so it's important that you realize the dangers involved before you move forward. Because this tweak will result in storing your password in plain text in the Registry, anyone with local or remote access to your Registry will be able to discover your password without much effort.

With all that said, let's go ahead and enable an automatic logon. Browse to the Winlogon folder using the following path in Registry Editor: HKEY_LOCAL_MACHINE\SOFTWARE\MICROSOFT\WINDOWS NT\CURRENTVERSION\WINLOGON. After you highlight the Winlogon folder in the left pane, double-click the DefaultUserName entry in the pane on the right, type your username in the Value Data field, and click OK. Double-click the DefaultPassword entry, type your password in the Value Data field, and click OK. (If there is no DefaultPassword entry, click Edit, New, and String Value. Type **DefaultPassword** as the value name and press ENTER. Then follow our previous directions to enter your password.)

Next, double-click the AutoAdminLogon entry, type **1** in the Value Data field, and click OK. (If there is no AutoAdminLogon entry, follow the same steps we just described to create a new value.) Close the Registry Editor and reboot your computer.

2 Increase hard drive allotment for System Restore. System Restore can be a godsend if your system has become unstable. For example, if WinXP started crashing on a regular basis but you can't find the problem, you can use System Restore to return your system to a previous stable state. The utility works by creating restore points, either automatically or manually. By default, you can grant as much as 12% of your hard drive space for these restore points. But using a Registry tweak, you can increase this "maximum" allotment, which should permit space for more restore points (which, in turn, is helpful if you tweak your system on a regular basis and count heavily on System Restore to cover your behind).

To implement the tweak, open the Registry Editor and browse to HKEY_LOCAL_MACHINE\SOFTWARE\MICROSOFT\WINDOWS NT\CURRENTVERSION\SYSTEMRESTORE. Double-click the DiskPercent value in the pane on the right, and you'll notice that

the default value is "c," which indicates that Windows can reserve as much as 12% of your root drive (where WinXP is installed) for restore points. If you type **d** in the Value Data field instead, System Restore will allow as much as 13% of drive space for restore points. Following suit, changing the value to "e" will grant 14% and changing it to "f" will grant 15% (without the quotes, of course). If you need even more space, any two-letter combination of values using letters ranging from "a" to "f" will let you use as much as 100% of your hard drive for restore points. However, we don't recommend that you use more than 25% of your hard drive for this purpose because doing so could interfere with space crucial Windows components need.

It's important to remember that if you give System Restore the drive space, it *will* use it, so make sure you're not sacrificing too much of your hard drive. But if you have a massive hard drive, a healthy stock of restore points could come in handy, especially if you're tweaking your system on a regular basis. For more information about System Restore, see "Find, Install & Use Backup & Restore" on page 54 and "Protect Yourself" on page 32.

3 Define the content of the Most Frequently Used Programs List.

The Most Frequently Used Programs List in WinXP provides convenient access to programs you use on a regular basis. However, some programs seem to appear regularly on the list no matter how often you use them. This behavior reduces the effectiveness of the list because little-used programs are wasting space that should be reserved for your more popular programs. Luckily, you can modify the Registry to prevent programs from appearing on the list. This is also useful if you don't want other users of the computer to see which programs you've been using.

First, open the Registry Editor and browse to HKEY_CLASSES_ROOT\APPLICATIONS. Within the Applications key, you'll see other keys that represent programs (for example, iexplore.exe represents Internet Explorer). Find the key(s) that represents the program(s) you want to banish from the Most Frequently Used Programs List. Within a particular program key, add a new string value called NoStartPage, and leave the data in the string as is. To do this, select the key and click Edit, New, and String Value. Type **NoStartPage** as the value name and press ENTER. Close the Registry Editor and restart your computer. That program will no longer appear in the Most Frequently Used Programs List.

4 Rename assigned Desktop Icons.

If you're into modifying the look and feel of your WinXP environment, one of your first priorities should be changing the name of the system icons on your Desktop. Although the changed names might take a little while to get used to, especially if you're a long-time Windows user, you'll certainly appreciate the personal touch.

To change the icon names, open the Registry Editor and browse to HKEY_CURRENT_USER\SOFTWARE\MICROSOFT\WINDOWS\CURRENTVERSION\EXPLORER\CLSID. Within the CLSID key, you'll probably see the following five keys that represent your assigned Desktop icons:

- **My Network Places**—{208D2C60-3AEA-1069-A2D7-08002B30309D}
- **My Computer**—{20D04FE0-3AEA-1069-A2D8-08002B30309D}
- **My Documents**—{450D8FBA-AD25-11D0-98A8-0800361B1103}
- **Recycle Bin**—{645FF040-5081-101B-9F08-00AA002F954E}
- **Internet Explorer**—{871C5380-42A0-1069-A2EA-08002B30309D}

To change an icon name, simply double-click its default value in the pane on the right, type a new name in the Value Data field, and click OK. Now right-click an empty spot on the Desktop and click Refresh to see the new name under the icon.

5 Automatic completion for Command Prompt.

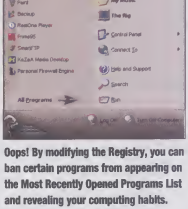
If you're a regular user of WinXP's Command Prompt for administration and other tasks, you know what a hassle the unintuitive interface can be. To make navigation simpler, Microsoft implemented automatic completion so that typing a few characters and using a key on your keyboard (TAB) will complete your file or folder identification for you. For example, typing **cd \pro** and pressing TAB switches to the Program Files folder. This function is only available on a session-by-session basis, unless you modify your Registry to activate it permanently.

To make automatic completion permanent for Command Prompt, open the Registry Editor and browse to HKEY_LOCAL_MACHINE\SOFTWARE\MICROSOFT\COMMAND PROCESSOR. Double-click the CompletionChar value, make sure the Base option is set for Hexadecimal, type **9** in the Value Data field, and click OK. Follow the same procedure for the PathCompletionChar value, and close the Registry Editor.

6 Keep DLL files out of cache memory.

Although DLL (dynamic-link library) files are crucial to system operation, it's not necessary for WinXP to keep them close by in case they're needed. Nonetheless, that's precisely what WinXP will do at times, despite the fact that these DLL files consume cache memory that could be spared for more important data.

To change this behavior via the Registry, browse to HKEY_LOCAL_MACHINE\SOFTWARE\MICROSOFT\WINDOWS\CURRENTVERSION\EXPLORER. With the Explorer key highlighted, create another key (a subkey) by clicking Edit, New, and Key. Type **AlwaysUnloadDLL** to name the key, press ENTER, double-click its default value, type **1** in the Value Data field, and click OK. Close the Registry Editor and reboot your computer. WinXP should now empty DLL files from cache memory when it finishes using them.



Oops! By modifying the Registry, you can ban certain programs from appearing on the Most Recently Opened Programs List and revealing your computing habits.

7 Display comma separators in the System Monitor.

The System Monitor is extremely useful, but it's not extremely user-friendly. One reason is because it doesn't provide comma separators, which means that counter values such as 1000000 are difficult to read. We're here to change that. In the Registry Editor, browse to HKEY_CURRENT_USER\SOFTWARE\MICROSOFT\SYSTEM MONITOR. (If you're using WinXP Home Edition, you'll need to add the SystemMonitor key first. With the Microsoft key highlighted, click Edit, New, and Key. Type **SystemMonitor** and press ENTER.)

Next, highlight the SystemMonitor key, and then click Edit, New, and DWORD Value. Type **DisplayThousandsSeparator** to name the value and press ENTER. Double-click the new value, type **1** in the Value Data field, and click OK. In

order for the change to take effect, close the Registry Editor and restart the System Monitor.

8 Customize your Taskbar groupings.

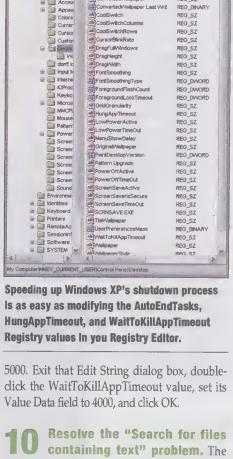
If you're a WinXP power user, your Taskbar real estate is extremely precious. After all, your Taskbar is likely loaded with Quick Launch and System Tray icons for various programs. And because you're a power user, your system is probably jammed with enough memory to let you multitask like crazy, letting you keep a flock of program windows open at once. Of course, all of this fills your Taskbar space with icons and buttons, but WinXP has a solution for that.

When you enable the Group Similar Taskbar Buttons option in the Taskbar And Start Menu Properties dialog box (right-click the Start button, select Properties, and choose the Taskbar tab), WinXP will combine buttons that represent the same open item or program. For example, if you have three open IE windows, you can click one button on the Taskbar and choose from any of the three windows. By default, WinXP groups items first that you opened first, but you can change the grouping behavior via the Registry.

Open the Registry Editor and browse to HKEY_CURRENT_USER\SOFTWARE\MICROSOFT\WINDOWS\CURRENTVERSION\EXPLORER\ADVANCED. With the Advanced key highlighted, click Edit, New, and DWORD Value. Type **TaskbarGroupSize** to name the value and press ENTER. Double-click the new value to change its Value Data field. If the Value Data field is set to 0, then WinXP groups the buttons by age, with the oldest group first. You can change the Value Data field to: 1 to group the buttons by size (largest group first); 2 to group programs or items when two or more instances are open; and 3 to group programs or items when three or more instances are opened. Change the Value Data field according to your preference and click OK. You'll need to close the Registry Editor, log out of WinXP, and then log back on for the change to take effect.

9 Quicken your system's shutdown speed.

WinXP is the speediest of all Windows OSes (operating systems), but if you think its shutdown process isn't fast enough, you can morph your shutdown from a turtle to a roadrunner. First, browse to HKEY_CURRENT_USER\CONTROL PANEL\DESKTOP and double-click the AutoEndTasks value. The default character in the Value Data field is 0. Change it by typing 1 in the field and click OK. You can further reduce the amount of time WinXP takes to shut down both active and hung applications by double-clicking the HungAppTimeout value (also at HKEY_CURRENT_USER\CONTROL PANEL\DESKTOP) and confirming that the Value Data field is set to 5000. Exit that Edit String dialog box, double-click the WaitToKillAppTimeout value, set its Value Data field to 4000, and click OK.



Speeding up Windows XP's shutdown process is as easy as modifying the AutoEndTasks, HungAppTimeout, and WaitToKillAppTimeout Registry values in you Registry Editor.

10 Resolve the "Search for files containing text" problem.

The Search function has never been flawless in past Windows OSes, and WinXP is no different. For example, when you execute a search for text or files containing a certain word or phrase, WinXP won't return results for certain file types. Using the Registry Editor, you can fix this problem by inserting a PersistentHandler value for each of the missing file types.

In the Registry Editor, go to HKEY_CLASSES_ROOT and find the key that represents the file type you wish to modify. For example, if WinXP isn't returning results on files ending the .WPD extension, expand the .WPD key branch and see if it contains a PersistentHandler key. If not, you'll need to add one (if it does contain one, *do not* modify it).

With the .WPD key highlighted, click Edit, New, and Key. Type **PersistentHandler** and press ENTER to name the key. Next, with the new key highlighted, double-click the default value in the pane on the right, type **{5e941d80-bf96-11cd-b579-08002b30bfeb}** in the Value Data field, and click OK. Close the Registry Editor and reboot your computer.

11 Disable the CD autoplay function in WinXP Home Edition.

Although the CD autoplay function has good intentions, it can be annoying if you're accessing the CD for something other than what WinXP assumes you're accessing. If you're a user of WinXP Home Edition, you'll need to modify your Registry to disable the feature.

Browse to HKEY_LOCAL_MACHINE\SYSTEM\CURRENTCONTROLSET\SERVICES\CDROM. With the Cdrom key highlighted, double-click the AutoRun value from the pane on the right, and change the 1 listed in the Value Data field to 0. Click OK, close the Registry Editor, and reboot your computer.

12 Hide the Recycle Bin.

For some of us, the Recycle Bin is the ultimate annoyance. After all, experienced computer users typically don't delete files by accident and rarely need to peruse the contents of the Recycle Bin. If the Bin is simply consuming space on your Desktop, you can hide it (and deleted files will continue to transfer to the Recycle Bin if it's still configured to accept deleted files).

Open the Registry Editor and browse to HKEY_LOCAL_MACHINE\SOFTWARE\MICROSOFT\WINDOWS\CURRENTVERSION\EXPLORER\DESKTOP\NAMESPACE. Within the NameSpace key, you'll find another subkey titled {645FF040-5081-101B-9F08-00AA002F954E}; delete this subkey. Close the Registry Editor, return to your Desktop space, and press F5 to refresh the Desktop, which should now be missing the Recycle Bin.

If you need to view your Recycle Bin contents later, you'll find them in the C:\RECYCLED folder. Of course, to see this folder, your system must be set to display hidden files and folders. Open the Tools menu, select Folder Options, choose the View tab, and below the Hidden Files And Folders heading, select the Show Hidden Files And Folders option. Click OK.

13 Fix damaged Outlook Express key.

If you're an Outlook 2002 or Outlook Express user, you've probably noticed the annoying bug that prevents your ISP (Internet service provider) password from being saved when retrieving email from a POP (Post

Office Protocol) server, even though you've told Outlook Express to save it. A damaged Protected Storage System Provider Registry key causes this behavior. The good news is you can fix it.

In the Registry Editor, browse to HKEY_CURRENT_USER\SOFTWARE\MICROSOFT\PROTECTED STORAGE SYSTEM PROVIDER. With the key highlighted, click Permissions from the Edit menu, and then click the Group Or User Name that represents the account you're currently using. Make sure the Read and Full Control permissions have check marks in their Allow checkboxes. Next, click the Advanced button, choose the Permissions tab, and select the current user account. Make sure that account's Permissions column lists Full Control and its Apply To column lists This Key And Subkeys.

At the bottom of the Permissions tab, select the checkbox next to Replace Permission Entries On All Child Objects With Entries Shown Here That Apply To Child Objects. Click Apply, click Yes, and then click OK twice.

Next, double-click the Protected Storage System Provider key, and then click the subkey directly below it; this subkey should look like a long string of letters and numbers, such as S-1-5-21-527237240-1078145449-725345543-1003. (If you see subkeys below the Protected Storage System Provider key, locate the subkey that represents the user account that's experiencing the bug and delete it per the following instructions. If all user accounts are experiencing the bug, delete all of the subkeys.) With the subkey highlighted, click Delete from the Edit menu and click Yes to confirm the deletion. Close the Registry Editor and reboot your computer.

14 Enable IP forwarding. If you want to use your computer as a router, WinXP is an excellent choice for an OS. But to use WinXP in a router configuration, you must enable IP forwarding. Browse to HKEY_LOCAL_MACHINE\SYSTEM\CURRENTCONTROLSET\SERVICES\TCPIP\PARAMATERS. Next, double-click the IPEnableRouter value and change the character in the Value Data field to 1 to enable routing. Click OK, close the Registry Editor, and reboot your computer.

15 Tweak IRQ settings for certain components. Although the Plug-and-Play specification has long helped to ease problems with IRQ (interrupt request line) conflicts, you still might find that one of your computer's components isn't being utilized efficiently. By increasing the priority given to an IRQ number that represents a certain component (such as the System CMOS/Real-Time Clock), you can boost its performance. (CMOS, by the way, stands for complementary metal-oxide semiconductor.)

In the Device Manager (right-click My Computer, select Properties, choose the Hardware tab, and click the Device Manager button), find the component you feel needs a boost and double-click it. In its Properties dialog box, choose the Resources tab, and find its IRQ number. Write down the IRQ number, close the Device Manager, and open the Registry Editor.

Browse to HKEY_LOCAL_MACHINE\SYSTEM\CURRENTCONTROLSET\CONTROL\PRIORITYCONTROL. Highlight the PriorityControl key, open the Edit menu, and click New, DWORD Value. Type **IRQ*x*Priority** (replace *x* with the IRQ number you wrote down) and press ENTER to name the value. Double-click the new value and type 1 in its Value Data field. Close the Registry Editor and reboot your PC.

Happy Tweaking. Editing your Registry can reap great rewards, especially when you modify system behavior that has annoyed you for a long time. In fact, some modifications may make you wonder how you ever worked in WinXP without them. As with many rewards, however, there are also potential pitfalls inherent in Registry modification, but you can avoid all of them by taking the proper precautions. And after applying a few of these tweaks, you'll forget all about that magical man who could pick combination locks. LG

by Christian Perry

The Tweak-XP Alternative

Modifying your Registry is a thrill. Particularly thrilling is getting your hands dirty in the forbidden Registry itself because, as you know, one mistake could damage your entire Windows installation, which makes you find the challenge even more fun. But what if you're not a thrill seeker (yet) and still want the benefits that Registry editing delivers?

Enter Tweak-XP, a Windows XP optimization utility from Totalidea Software (http://www.totalidea.de). This tool combines a multitude of Registry tweaks and other system optimization adjustments into an easy-to-use interface that makes system modifications as easy as clicking a mouse button.

Tweak-XP differs from actual Registry edits in the form of execution only. Tweak-XP modifies the Registry keys in the same way as you'd probably edit them manually, but Tweak-XP performs this modification in the background. Using such a utility saves you from the danger of incorrectly modifying—and potentially damaging—your Registry. Still, even though Tweak-XP's modifications are thoroughly tested, your system won't necessarily accept the modifications with no problem. After all, many of these tweaks weren't included as changeable options in the default installation of WinXP, and by using them, you're veering from the cozy, stable environment of the vanilla OS (operating system). Even so, the pure number of easy-to-implement changes that Tweak-XP offers makes it a tantalizing utility to customize your computing environment.

What does it do? Perhaps a more appropriate question is: What *doesn't* it do? First of all, Tweak-XP lets you specify which applications should or shouldn't run on your computer, as well as block banner ads and tweak your Internet connection. And if you're not happy with your Windows cache settings, you can change them, too. In addition, you can fine-tune your startup options and create your own "autostarts," modify the Start menu according to your preferences, and shuffle several Desktop items (including icons, shortcut arrows, and more). You also can change the location of system folders, hide drive letters and Control Panel applets, and change the look of Internet Explorer. Tweak-XP even lets you add transparency effects to the Taskbar.

Again, modification of your system using Tweak-XP is no different on a structural level than manual modification. If anything, these tweaks are safer if you're prone to careless mistakes while working in the Registry Editor. Of course, we still *strongly* suggest backing up your Registry before implementing any of Tweak-XP's changes, even though the utility will automatically create restore points for you. The shareware version of Tweak-XP will provide you with 50 free uses, after which you must register for $29.95.

The NTFS Conversion

Why You Should Convert Your File System, Why You Shouldn't & How To Make The Switch

It's a double-edged sword. You're proud that you taught your kids to use your Windows XP home computer, yet now you're worried that they'll delete some of your sensitive files. At work, you're feeling pretty good about getting your small office network up and running, but you don't want all your co-workers to have access to the payroll files.

Microsoft's consumer **file systems** (methods of storing data on hard drives), FAT (file allocation table, 16-bit) and FAT32 (FAT, 32-bit), are geared toward making file access easy, not difficult. However, WinXP users have the option to use NTFS (New Technology File System) instead of FAT or FAT32. Microsoft offered earlier versions of NTFS in Windows NT and Windows 2000. In addition to other benefits, NTFS lets you set limits on who can access which folders and files, and what they can do with them once they have access. Used in combination with WinXP's User Profiles, NTFS can safeguard your data while still allowing others to use the computer.

WinXP's Setup utility asks you during installation if you want to install the OS using NTFS, FAT, or FAT32. Don't worry if you chose one of the more familiar FAT versions, or if your PC came preloaded with WinXP and FAT32, because you can convert your file system to NTFS later. If you have more than one **partition** on your hard drive (a set amount of drive space, also called a **volume**, with its own drive letter, such as C:), you can even use NTFS on one partition and FAT or FAT32 on another. For example, you might have WinXP installed on the C: partition of your drive using NTFS and have a D: partition for shared files using FAT32 on the same drive.

Before you attempt any of these scenarios, back up your personal files on the affected volume to another hard drive partition, a CD-R (CD-recordable) or CD-RW (CD-rewriteable), or some other medium. You might also export and back up your email client's address book and your browser's favorites list if those applications are on the partition you want to convert.

■ **Why NTFS?** NTFS uses disk space more efficiently than FAT or FAT32, but its advantage over FAT32 in this area is small. More important are NTFS' security features.

Permissions. Using NTFS, WinXP lets you set specific security options through folders' Properties windows. WinXP Home uses Simple File Sharing, which lets you set access rights for folders (directories) such as My Documents in your user profile, but not individual files. WinXP Professional, however, lets you disable Simple File Sharing for greater file-level control, as in Win2000.

In NTFS, a Security tab appears in folders' Properties windows that isn't available with FAT or FAT32. This tab gives you setting options such as Permissions. WinXP's Help feature has more details on how to set up access rights: Click Help And Support from the Start menu, type **NTFS** in the Search field, and then press ENTER.

Encryption. NTFS lets you use EFS (**Encrypting File System**, Microsoft's encryption tool). This feature, when enabled, automatically encrypts the files or directories you designate by selecting a particular checkbox in their Properties dialog boxes. You shouldn't notice any difference from ordinary file access as you use your PC. However, anyone logging on without your username and password won't be able to access the encrypted files on your hard drive.

Error correcting. NTFS is more reliable than FAT or FAT32, partly because it does a better job of watching for errors and correcting them. NTFS also keeps close tabs on file changes for easier recovery in case of disaster.

Of course, there are some disadvantages to using NTFS.

OS compatibility. You can still **dual-boot** or **multi-boot** (use two or more OSes on one computer) if there's a WinXP NTFS partition on your hard drive, but Windows 95/98/Me won't be able to see or access the NTFS volume (nor will DOS and WinNT versions prior to 4.0 with Service Pack 4).

We converted the D: WinXP partition on a dual-boot system to NTFS and could still boot to WinMe on the C: drive without any problems other than the lack of access to the D: partition in Windows Explorer. Even so, WinXP could access both the FAT32 C: partition and its own NTFS partition normally.

Application compatibility. Before you convert to NTFS, make sure that all the applications you plan to use while running WinXP are fully compatible with it. Some utilities may not work with NTFS.

One-way ticket? Finally, unless you have a suitable aftermarket utility (as described in the "Convert NTFS Back To FAT/FAT32" section later in this article), the only way to change an NTFS partition back to FAT or FAT32 involves wiping it clean and starting over. This means formatting the partition and reinstalling everything on it, maybe even Windows. So consider this and the aforementioned disadvantages before making your decision to switch to NTFS.

■ **Convert To NTFS.** There are a few ways to convert a partition, depending upon your situation. Here are two methods available in WinXP and one provided by third-party software. Each of the following methods lets you make the jump to NTFS without requiring you to reinstall your OS—unless something goes wrong, which did for us in one instance.

Command Prompt. By now, you should realize that converting your OS partition's file system to NTFS isn't a decision you should make lightly. Microsoft seems to emphasize this fact by tucking its NTFS conversion utility out of the way, where only those who go looking for it are likely to find it. In fact, you'll even need to fire up WinXP's Command Prompt utility, which is sort of a DOS-like command line console that's not really DOS.

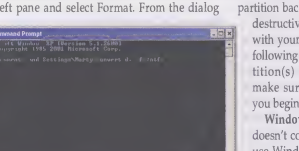
To display the Command Prompt window, click Start, All Programs, Accessories, and Command Prompt. You can also get there by clicking Start, Run, typing **cmd.exe**, and clicking OK.

In the Command Prompt window, type **convert c: /fs:ntfs** at the command prompt that appears on-screen and press ENTER. Microsoft says this command shouldn't mess up your files, but don't let that keep you from backing them up first. The CONVERT command worked fine for us one time, but corrupted one of our test system's DLL files the next, making WinXP unbootable. But with the help of VCOM's Partition Commander 6, which came bundled with System Commander 7 ($69.95 boxed; http://www.v-com.com), we successfully converted the partition back to FAT32 so WinXP could boot again.

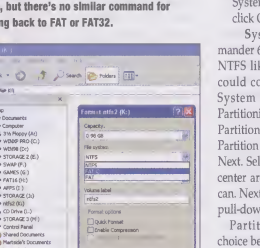
If you are attempting to convert the same partition, or volume, on which WinXP is running, Windows may ask you if you wish to force the volume to **dismount** (make itself inaccessible to the OS). Even if you type **y** to answer "yes" and press ENTER, though, Windows may tell you it can't force the dismount after all. If this happens, or if you type **n** and press ENTER, Windows will ask you if you want to schedule the NTFS conversion for the next time you reboot. If you type **n** and press ENTER here, the convert command will abort and leave you back at the command prompt. If you type **y** and press ENTER, Windows will confirm your choice. Close all windows, and then click Start, Shut Down, Restart, and OK.

WinXP will enter a blue setup screen after it reboots your PC. Next, it will check your disk for errors, announce that it's converting your partition to NTFS, and restart your system again. In our case, WinXP did a second disk check, performed a longer conversion process, and rebooted a third time. To confirm that the CONVERT command did what it was supposed to do, click Start and My Computer. Right-click the relevant drive partition and select Properties. This dialog box should now list the partition's file system as NTFS.

Windows Explorer. If the partition you want to convert doesn't contain WinXP, it's very easy to convert it in Windows Explorer. Right-click Start and choose Explore. Copy all the files you want to store from the partition to a backup medium or another drive volume because this method will erase everything on the partition. Next, right-click the partition's drive letter in the left pane and select Format. From the dialog box, choose NTFS from the File System drop-down menu, click the Start button, and click OK.



You can use the CONVERT command in Windows XP's Command Prompt console to change a partition to NTFS. It's relatively safe to use even on your WinXP partition, but there's no similar command for converting back to FAT or FAT32.



If you need to convert a partition that doesn't have Windows XP on it, or anything else you want to keep, use Windows Explorer's Format command. It will erase the partition, but it makes converting among FAT, FAT32, and NTFS quick and easy.

Partition Magic. A few partitioning utilities can convert FAT or FAT32 to NTFS partitions without disrupting your OS or files. PowerQuest's PartitionMagic 7.0 ($69.95; http://www.powerquest.com) is a WinXP-compatible example.

In PartitionMagic 7.0, click the drive letter of the FAT or FAT32 partition you want to convert to NTFS and then click Convert from the Operations menu. Choose NTFS, click OK twice, and click Yes.

Convert NTFS Back To FAT/FAT32. If you don't have an aftermarket utility such as Partition Magic 7.0 or Partition Commander 6, your options for returning your WinXP NTFS partition back to FAT or FAT32 are somewhat destructive. One drastic method is to boot with your WinXP CD-ROM and reinstall it, following the directions to change your partition(s) back to FAT or FAT32. Again, make sure you back up your data before you begin.

Windows Explorer. If the NTFS partition doesn't contain WinXP, you can once again use Windows Explorer's Format command to convert it back. Remember, back up your data because Format will erase the partition. Then, right-click the partition, select Format, choose FAT or FAT32 from the File System drop-down menu, click Start, and click OK.

System Commander. Partition Commander 6 couldn't convert existing partitions to NTFS like Partition Magic 7.0 could, but it could convert NTFS volumes to FAT32. In System Commander's boot screen, click Partitioning. If this is the first time you've used Partition Commander, click OK twice. In the Partition Wizard, click Manual Partitioning and Next. Select your drive's NTFS partition in the center area; ours looked like a burgundy soda can. Next, click Conversion from the Advanced pull-down menu. Click Next and Proceed.

Partition Commander didn't give us a choice besides FAT32, but that happened to be the file system we wanted for our 6.5GB WinXP partition anyway. Inexplicably, the program also demanded that we reset the time zone and language information, as does Windows Setup. We did, and clicked Finish. Partition Commander took about 20 minutes to convert our partition back to FAT32. We then closed Partition Commander and clicked Start, Exit, and OK to reboot.

No Regrets. Again, we can't stress enough how important it is to back up your important data before doing something like converting a file system. The one time you don't, you will wish you had. And that's a lesson that applies no matter what file system you use. LS

by Marty Sems

Keyboard Shortcuts

Mouse-Free Computing Has Its Advantages

It happens to everyone. There you are, typing away on your computer, when you have to stop what you're doing, lift one hand off the keyboard to place it on the mouse, drag its pointer across your screen, click an item, and place your hand back on the keyboard. It may only take a few seconds, but those seconds add up. Save yourself some time by ignoring the mouse and learning a few Windows XP keyboard shortcuts.

1 Start off right. Anyone with a system running WinXP and using a Microsoft Natural Keyboard or any compatible keyboard that includes the Windows Logo key (the key that looks like a four-paned window in motion) can take advantage of a number of keyboard shortcuts. For example, press the Windows Logo key (which we'll refer to as the Windows key from now on) to display the Start menu; press it again, and the Start menu disappears.

2 Help yourself out. The Help And Support Center is a useful tool that can introduce you to what's new in WinXP, make it easy to fix a variety of problems, and help you make the most out of your computing experience. You can quickly display this center by holding down the Windows key and pressing F1.

3 Make the most of minimization. Sure, you can minimize one window at a time by clicking the appropriate button in the upper-right corner, but you can use one keyboard shortcut to minimize all open windows. Just hold down the Windows key and press the *D* key to show the Desktop, which will minimize all windows blocking it from view. This shortcut also acts as a toggle switch. To cause the windows to reappear on-screen, press Windows-D again.

4 Multiple methods of minimizing. You also can use the Windows key to minimize programs in another way: Hold down the Windows key and press *M*. Unlike Windows-D, however, you can't use Windows-M to reverse the process by pressing the keys again. Instead, while simultaneously holding down the Windows key and the SHIFT key, press *M*.

5 Tabbing with Windows. You've probably already discovered that when you have multiple windows open, you can switch from one to another by using ALT-TAB and pressing ENTER when the desired window is highlighted from the choices shown. You can perform a similar task with the Windows key. Press Windows-TAB, and you'll move from button to button on the Taskbar. After landing on the button associated with the designated window, press ENTER, and the window will open on-screen.

6 Search within one computer. Searching for files and folders on your hard drive has never been easier. Windows-F displays the familiar Search window for your system. Once you've used this keyboard shortcut, click the desired link in the left pane and follow the on-screen instructions.

7 Search for other computers. Computer users on a network can use keyboard shortcuts to look for other computers, as well. Windows-CTRL-F displays the Search Results window featuring the Computer Name search field in the left pane. Here, you can type the name of the computer you're looking for, as well as search your own computer's drives for files or search the Internet for Web pages.

8 Don't run away. The Run dialog box acts as a shortcut for finding numerous programs on your hard drive. Not surprisingly, there's also a shortcut for opening this dialog box. Use Windows-R to display the Run dialog box. Then, you can type the name of whichever program you're trying to launch in its Open field and click OK.

9 Know your system properties. Want to know how much RAM your hard drive has? Need to track and reverse harmful changes to your computer? Want to set automatic updates for your system? You can do all of this via the System Properties dialog box. Open it via Windows-BREAK. (You'll find the BREAK key above your PAGE UP key.)

10 Share your computer or keep others out. By default, WinXP sets up what is called Fast-User Switching. This lets you specify that a user's programs remain running while another user logs onto the computer. When your system has Fast-User Switching enabled, pressing Windows-L will display the Fast-User Switching welcome screen, where you can click the desired user account.

When your system doesn't have Fast-User Switching enabled, and you are connected to a network, pressing Windows-L will lock your computer. But if you are networked and don't have a password associated with your user account, pressing Windows-L will not prevent other users from accessing your account information.

11 Manage utilities wisely. WinXP has a number of built-in accessibility programs, such as Magnifier, Narrator, and On-Screen Keyboard. You can reach all of these from within the Utility Manager. For instance, you can specify that Magnifier automatically start the next time you log onto your computer. Open the Utility Manager by pressing Windows-U.

12 Let's look inside. My Computer, which is essentially an outline of the contents of a system, is often where a user will go when she wants to access one or all of the drives on her computer. Rather than opening the My Computer window by double-clicking its icon on your Desktop or clicking its icon in the Start menu, skip the mouse routine and open the window by pressing Windows-E.

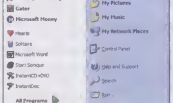
13 Go to the head (or foot) of the list. Within Windows Explorer, you can press the END key to jump directly to the last listing shown in the left pane or right pane, depending on which pane you're currently using. To jump to the top of the list in either pane, press HOME.

14 Display all subfolders within a folder. When you first open Windows Explorer, you might notice that all the folders are collapsed. To show all the subfolders within a certain folder, highlight that folder (using your arrow keys) and press the NUM LOCK and asterisk (*) keys on the numeric keypad portion of your keyboard.

15 Display all contents within a folder. Within Windows Explorer, you can toggle back and forth to show or hide all the contents of a particular folder. With the folder highlighted, press the NUM LOCK and plus sign (+) keys on the numeric keypad to display the folder's contents. Or, to hide the folder's contents, press the NUM LOCK and minus sign (-) keys on the numeric keypad instead.

16 Navigate with arrows. The arrow keys can often be the fastest way to navigate through the folders displayed in Windows Explorer. Pressing the Left arrow key while a folder is expanded will collapse the folder; if the folder is not collapsed, this action selects the parent folder. Pressing the Right arrow key while a folder is collapsed will expand the folder; and if the folder is already expanded, this action selects the first subfolder.

17 View an item's properties. If you're wondering about a file's or folder's size, how many files and/or folders it contains, when it was created, and what its attributes are, all you need to do is open the File Properties dialog box by pressing ALT-ENTER. This works within Windows Explorer, and it also works within other programs, such as using it to analyze a mail folder in your email program.



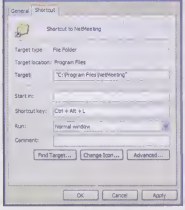
Press the Windows Logo key to display the Start menu.

18 An alternate way to close a program. The ALT key has many other useful functions. One is to press ALT-F4 to close an active item or quit an active program. For example, if you're surfing the Web with Internet Explorer while you're at work, you can use the ALT-F4 shortcut to quickly close the program before your snoopy co-worker walks by your desk.

19 Another alternative for switching programs. ALT-ESCAPE is another useful shortcut for scrolling through programs. Press ALT-ESCAPE, and you'll cycle through each open window, in the order you opened them.

20 A shortcut to a shortcut menu. Restore, Move, Size, Minimize, Maximize, and Close are options for any program. To quickly display this list, press ALT-Spacebar from within an open application window.

21 Control your shortcuts. You can specify shortcut keys for program files (EXE files) that have shortcut icons (or create a shortcut for an EXE file if you wish). Open My Computer, right-click the program file's shortcut (remember, you need to right-click the shortcut, not the actual EXE file), and click Properties. Choose the Shortcut tab, click inside the Shortcut Key field, and press the keyboard key you want to use in combination with CTRL-ALT (all these shortcut keys automatically start with CTRL-ALT). The field will now display CTRL+ALT+ the key you pressed. (Please note that for this tip, you cannot use the Spacebar or the ESC, ENTER, TAB, PRINT SCREEN, SHIFT, and BACKSPACE keys.)



You can create your own keyboard shortcuts for files with shortcut icons.

22 Control word processor documents. While working with a word processor document, press the CTRL key in combination with the arrow keys to move the insertion point. Press CTRL-Right arrow to move the insertion point to the beginning of the next word. Press CTRL-Left arrow to move the insertion point to the beginning of the previous word. Press CTRL-Down arrow to move the insertion point to the beginning of the next paragraph. Press CTRL-Up arrow to move the insertion point to the beginning of the previous paragraph.

23 Highlight a block of text. Add the SHIFT key to any of the previous CRTL-arrow combinations to highlight a block of text. CTRL-SHIFT-Right arrow, for instance, will highlight the next word (press the Right arrow key repeatedly to select multiple words), and CTRL-SHIFT-Up arrow will highlight the previous paragraph.

24 Control how you start. OK, so we already mentioned one way to display the Start menu with the Windows key, but if you don't have the Windows key on your keyboard and want another option, here you go: Press CTRL-ESC. Then, to close the Start menu, simply press CTRL-ESC again.

25 Keyboard key, what's your function? The Function keys act as shortcuts for performing functions such as saving files or printing data, and they're usually lined along the top of the keyboard and labeled F1 through F12. Press the F1 key while a program window is open to display that specific application's Help file. If no windows are open when you press F1, this action will display the Help And Support Center instead.

26 Rename a file. Yes, you already know how to rename a file via Windows Explorer: Highlight the file, right-click it, and select Rename from the pop-up menu. But there also is a way to perform this action without a mouse. Just highlight the file (using your arrow keys), press F2, type over the current file name, and press ENTER.

27 For an instant search function. Close or minimize all open program windows, and then press the F3 key to display the WinXP Search Results window.

28 Reveal the Address bar contents. To see the contents of your Address bar's drop-down menu, press F4. Doing so will display the listings of the Address bar in any Microsoft Windows application that contains one. For instance, open Windows Explorer and press F4, and you'll see the contents of your system. Open IE and press F4, and you'll see a list of Web pages you recently visited.

29 Get refreshed. Clicking the Refresh button from the IE's Standard Buttons toolbar refreshes Web page content. For a mouse-free alternative, press the F5 key instead. This refreshes content in the active window. The keyboard shortcut also works with several other Microsoft programs, such as Windows Explorer and Microsoft Outlook (actually, it prompts Outlook to check for new email).

30 Cycle through with F6. In most cases, pressing F6 causes you to cycle through screen elements in a window or on the Desktop. For example, open a Web page that contains frames in IE, and you can use F6 to switch among browser frames, windows, and other elements, such as the Address field.

Or, minimize all your programs and press F6 to cycle through the sections on-screen, including the Start button, Taskbar items, and Desktop icons. Please note that pressing F6 won't let you cycle through each individual item; for instance, you'll only land on one Desktop icon. But using your arrow keys will let you cycle through each item within a group and pressing ENTER will open or launch a highlighted item.

31 Variations on F7, F8, and F9. Many of the function key commands vary among applications, and this is true of the F7, F8, and F9 keys. For example, you probably won't use the F7 key much as a WinXP keyboard shortcut, but during the WinXP Setup, you'll need to press F7 if you want to run Setup without the Advanced Configuration and Power Interface.

One application that has a use for all three of these function keys is Microsoft Word. Press F7 while working with a Word document to launch the Spelling And Grammar tool. Pressing F8 in a Word document selects blocks of text, and pressing F9 lets you update selected fields. To see what task each function key executes within an active and open application window, use that application's Help file to perform a search for each function key.

Press SHIFT-F10 while using Internet Explorer to see its shortcut menu.

32 Activate the Menu bar. In most programs, pressing the F10 key gives you keyboard access to the program's Menu bar, which typically includes menus such as File, Edit, View, Tools, and Help. Once you press F10 to highlight the first menu on the Menu bar, you can use your arrow keys to access individual menu options.

33 Use F11 if you have it. Not all keyboards have an F11 key, but if you have one, how you use it will depend upon which program you have open. For example, pressing F11 while using IE will toggle you between full-screen and regular views of the browser window. In Microsoft Money, pressing F11 will toggle the entry amount between the Euro and the currency of the account for Euro member currencies.

34 Last but not least: the F12 function key. The F12 key command also varies among applications. For instance, pressing F12 while using any Microsoft Office application displays the Save As dialog box.

In some applications, however, F12 simply doesn't exist as an option. Many programmers have disregarded writing a function that corresponds to the F12 key, so if you can't locate it in the application's Help file, it probably doesn't have a function associated with it.

35 Combine function and control. The function keys often work in conjunction with other keys. Press CTRL-F4, for example, and you'll close the active document in programs that let you have multiple documents open simultaneously.

36 Shift to a new function. Another example of the function keys working with other keys is SHIFT-F10. Open any Microsoft application (and some non-Microsoft programs, such as Netscape Navigator) and press SHIFT-F10. This will display the selected item's shortcut menu. Press SHIFT-F10 in IE, and you can quickly add a page to your Favorites list, view its source code, export it to Microsoft Excel, and perform many other tasks.

37 Just SHIFT and select. The SHIFT key works with the arrow keys to select more than one item in a window or on the Desktop, or even to select text within a document. You've probably used this command when you're doing something such as playing MP3 files on your computer and opening multiple song files. Well, the same concept applies when selecting Desktop icons or text in a word processor document.

38 Turn off the music. Do you want to insert a CD into your disc drive and prevent it from playing automatically? That's an easy fix: Hold down the SHIFT key while inserting the CD in the drive.

39 Bypass the Recycle Bin. The typical process for deleting an item places it in the Recycle Bin, where users might remember to empty its contents days (or weeks) later. To ensure that an item doesn't sit in the Recycle Bin where anyone can retrieve it simply by clicking it, take steps to delete the item from view by pressing SHIFT-DELETE.

■ **For More Help.** These are just a few tips for using keyboard shortcuts. For more information, we recommend that you visit the Help And Support Center—via Windows-F1, of course—type **keyboard shortcuts** in its Search field and press ENTER. LS

by Heidi V. Anderson

Computing Without Conflicts

Address Compatibility Issues When Mixing Software & Hardware

Veteran computer users will recall a time in the mid-1990s when Microsoft released a revolutionary version of Windows that abandoned the traditional model in favor of increased functionality, better usability, and improved performance. The critics raved, but a number of users complained about problems running their old software under the new OS (operating system). Microsoft offered a few workaround solutions, but the fact remained: Users would have to abandon their outdated DOS programs in order to benefit from Windows 95.

A similar situation is upon us today as Microsoft unveils its latest OS. Windows XP stands in stark contrast to its Windows 9x and Windows Me predecessors, and as a result, some applications and utilities have had trouble making the transition. Fortunately, you have several options for dealing with the problem, including the use of a new WinXP feature called Compatibility Mode that lets you run a conflicting program in a simulated operating environment.

■ **Why Compatibility Is An Issue.** First of all, you should understand that compatibility is always an issue when changing OSes. Something as simple as renaming a Windows folder, for instance, can cause legacy (old but usable) programs to become confused and unresponsive. So, too, can the movement of system files from one folder to another. Perceptive users may notice this phenomenon at work in WinXP, which holds its user profiles in the Documents And Settings folder instead of in the Windows folder, as is the case in WinMe and Win9x.

Another cause of incompatibilities among OSes is the kernel. The **kernel** is a module of code that handles core OS tasks, such as managing the computer's resources and launching applications. The latest version of Windows is based on the same kernel as Windows NT and Windows 2000. This kernel is markedly different from the one that sits at the heart of Win9x and WinMe. For this reason, programs designed for use with Win9x or WinMe may not function properly if users transport them to a WinXP environment.

Whatever the cause, compatibility conflicts manifest themselves in several ways. Some are quite subtle, showing up as a missing toolbar on the application interface or as a context menu that doesn't perform as it should. Others are more blatant, revealing themselves through error messages that state the obvious, such as "This application has a known compatibility issue with this version of Windows."

Basically, you should assume that you have a compatibility conflict on your hands if an application that ran just fine under another OS starts giving you problems as soon as you upgrade to WinXP.

■ **Avoid It If You Can.** The best way to address the issue of compatibility is to prevent it from happening in the first place. You can do this by checking with the Windows XP Upgrade Centers before you upgrade to WinXP. You'll find the Windows XP Home Edition Upgrade Center at http://www.microsoft.com/windowsxp/home/howtobuy/upgrading and the Windows XP Professional Upgrade Center at http://www.microsoft.com/windowsxp/pro/howtobuy/upgrading.

The main purpose of the Upgrade Centers is to help you determine whether your computer is capable of accepting the new OS. They provide detailed information about system requirements and approved upgrade paths, as well as step-by-step instructions for performing the upgrade. More importantly, at least where compatibility is concerned, the centers provide searchable catalogs of software and hardware that are verified to work with WinXP.

To access the catalogs, open your Upgrade Center and click the Make Sure Your Hardware And Software Are Compatible link. Click the Search The Windows Catalog link on the next page. The resulting Search Windows Catalog page provides a field in which you can type the identifying criteria, such as the name of the program or the name of its developer. Click the Go button to activate the search. Within a few seconds, a list of matching software will appear in a separate window. The results indicate whether a particular program was designed specifically for use with WinXP or whether it has tested positive for compatibility with WinXP.

You can continue using the Windows Catalog even after installing WinXP. You should check Windows Catalog before investing in new software or hardware for your system. Keep in mind that the results will show only the programs and peripherals that have proven compatible with WinXP, so those not listed in the Windows Catalog may not be compatible with WinXP.

Another tool that may be of some use if you're planning to upgrade to WinXP Pro is the Upgrade Advisor. This tool is a downloadable program that scans your system to determine whether you have any software or hardware that will conflict with WinXP Pro. The program will point out any potential problems and suggest a solution. It also will automatically retrieve and install updates that you need.

You can access the Upgrade Advisor through the Upgrade Center, or you can download it

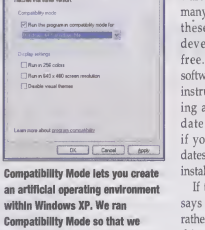
directly by visiting http://download.microsoft.com/download/whistler/Utility/1.0/WXP/EN-US/UpgAdv.exe. The download will begin immediately upon accessing this site. Because the download involves approximately 50MB of data, don't attempt it unless you have a high-speed Internet connection. Once you have the file, double-click it to launch the Upgrade Advisor. For more information about the Upgrade Advisor before downloading it, see http://www.microsoft.com/windowsxp/pro/howtobuy/upgrading/advisor.asp.

Don't fret if you can't download the Upgrade Advisor. The WinXP Setup program performs a similar check when you install the OS. Pay attention to any potential problems it reports and take proactive measures to correct them. Proactive measures include contacting the software developer to see whether you can obtain downloadable updates that fix the problems; purchasing a version of the program that is compatible with WinXP; and as a last resort, removing the conflicting software from your system. After you address the conflicts, restart the computer and begin the WinXP installation again.

Go With The Mode. Prevention is the best solution, but what can you do to address compatibility issues when the OS is already up and running? If you suspect that one of your installed programs is incompatible with WinXP, the first thing you should do is remove it from your system. Make sure you are logged in as the Administrator and that all other users are logged off, and then reinstall the software.

The next thing you should do is contact the software developer. The developer can tell you whether you need an update to run the old software under the new OS. In many cases, you can obtain these updates from the developer's Web site for free. Simply follow the software developer's online instructions for downloading and installing the update. Don't be surprised if you have to obtain updates for several programs installed on your PC.

If the software developer says you need an upgrade rather than an update, heed this advice. Some applications, including antivirus utilities, drive maintenance utilities, and CD-burning applications, are designed specifically for use with a particular OS. Trying to run such a program under WinXP could lead to system instability. If you want to continue using the software, the only solution is to purchase the most recent version of the product.


Acoustica Mp3 To Wave Converter Plus Properties
General
Shortcut
Compatibility
If you have problems with this program and it worked correctly on an earlier version of Windows, select the compatibility mode that matches that earlier version.
Compatibility mode
Run this program in compatibility mode for:
Display settings
Run in 256 colors
Run in 640 x 480 screen resolution
Disable visual themes
Learn more about program compatibility
OK
Cancel
Apply

Compatibility Mode lets you create an artificial operating environment within Windows XP. We ran Compatibility Mode so that we could get full functionality out of our Acoustica MP3 To Wave Converter PLUS (http://www.acoustica.com) program.

If reinstallation and updates don't work, it's time to bring out the Compatibility Mode. This nifty feature of WinXP lets you run an incompatible program in a simulated environment that is more favorable for its performance. If a program runs best in Win95, for instance, you can set the Compatibility Mode to run the program in an environment that emulates Win95. The Compatibility Mode settings only affect the selected software and remain permanently tethered to it so that you do not have to deal with that program's compatibility issue again.

You can choose to have WinXP select and activate the Compatibility Mode automatically, or you can set the mode manually. We suggest using the automated procedure when you are uncertain about the environment in which the program works best. Use the manual procedure when you know which OS the program prefers.

The automated option. The Program Compatibility Wizard guides you step by step through the process of establishing a Compatibility Mode for a problematic application. To activate it, you need to open the Start menu and select the Help And Support option. In the resulting Help And Support Center window, look below the Pick A Help Topic heading and click the Fixing A

Drivers Wanted: Dealing With Hardware Incompatibility

Between downloadable product updates and the new Compatibility Mode, you should be able to handle most software-related compatibility issues in Windows XP. But what do you do when conflicts arise between your old hardware devices and the new OS (operating system)? You update the **drivers**.

A driver is a small program that facilitates communication between a hardware component and the rest of the computer system. The drivers that come bundled with your components are designed to operate with their peer generation of software and hardware. As you add new hardware and software to your PC, the old drivers become outdated. And they really become outdated when you upgrade the OS.

Manually updating all of the drivers could take a long time. Fortunately, each version of Windows carries with it a large collection of updated drivers, which are installed automatically during Windows Setup. Setup searches your system, identifies components, and installs the drivers in a matter of minutes. If Windows fails to recognize one (or more) of your components, you will have to update its (their) driver(s) by yourself.

All you have to do is visit the device manufacturer's Web site, access the Support area, and poke around until you locate a collection of downloadable drivers for your component. To obtain the latest WinXP-compatible drivers for a Creative Labs device, for instance, you would visit the Creative Labs Support site at http://www.americas.creative.com/support. Click the Download Drivers link and select your product. A list of matching drivers will appear on-screen. Clicking the one you want (make sure it's designed for WinXP) will start the download.

After downloading a driver, you need to install it. Usually that means locating the file on your PC, double-clicking it, and then waiting while the driver is installed automatically. Installations vary, however, so read the instructions carefully to perform the installation correctly. Some sites let you print the instructions before downloading the file. Take advantage of this option if you can.

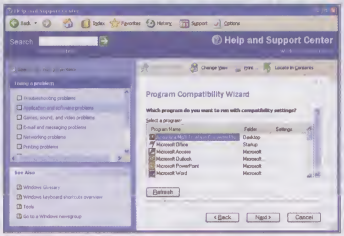
Problem link. The next window is divided into two panes. The pane on the left contains a list of general problems; select the one that says Application And Software Problems. In the pane on the right, you will see a corresponding list of specific problems. Locate the Getting Older Programs To Run On Windows XP option and click it.

A set of instructions for dealing with compatibility issues will appear on-screen. Within the body of instructions, locate the To Run The Program Compatibility Wizard section and click the Program Compatibility Wizard hyperlink (it will appear in blue and underlined). This opens the Program Compatibility Wizard.

The wizard's Welcome screen includes a warning that you should refrain from using the wizard with older antivirus utilities, backup utilities, and system management utilities. As suggested earlier, you should heed this warning. Why? Unlike most programs, which run on top of Windows, system utilities interact with all parts of the OS, including the kernel. Dealing with the kernel is a complex and potentially dangerous proposition. A small glitch here could send your system into a permanent crash. Rather than risk trouble, programmers simplify things by writing the utilities so they work with specific versions of the OS. Attempting to run these programs under another version of Windows puts the stability of your PC at risk.

Assuming you are not running the Program Compatibility Wizard with one of these utilities, click the Next button to proceed. On the following screen, you must specify how you want to identify the problematic program. We suggest using the default option, which lets you choose the incompatible program from a list of all programs installed on your PC. Click the Next button to see the list of programs. Highlight the one that needs to run in Compatibility Mode and click the Next button.

The Program Compatibility Wizard lets you run the program in one of four environments: Win95, WinNT 4.0, Win98/Me, and Win2000. Choose the environment you want to try and click the Next button. Indicate whether you want the program to run in 256-color mode or at a resolution of 640 x 480. You also can disable visual themes at this time. Adjust these display settings only as a last resort. Click the Next button to proceed.



The Program Compatibility Wizard simplifies the process of setting up Compatibility Mode. Just pick the incompatible program from the list and let the wizard guide you the rest of the way.

roxio
COMPANY
PRODUCTS
SUPPORT
STORE
SEARCH
Support Home
Easy CD Creator
Toast
Jam
Softack
VideoPack
VideoWave
Cinematic
PhotoStudio
Plug Ins
Software Updates
Discussion Groups
Knowledgebase
Customer Service
Product Registration
Contact Feedback
Easy CD Creator Support
Software Updates
Easy CD Creator 6.x Software Updates
EASY CD CREATOR PLATINUM UPDATES
Updates Easy CD Size Platinum to 5.1
This web update is designed to update English, French, Italian, German, Spanish, Dutch and Japanese versions of Easy CD Creator 5.x Platinum to version 5.1. It can be installed in All Windows Operating Systems. It has some fixed and adds new drive support, including support for DVD-RW/W. It does not support DVD+R, however Direct CD will support DVD+RW. This update will install Windows XP specific drivers and make the necessary registry entries to allow Easy CD Creator to operate correctly in Windows XP

Incompatibility issues are common in Windows XP, and many software developers have had to post updates on their Web sites. For example, this update at Roxio Software (http://www.roxio.com) helps Easy CD Creator run correctly on WinXP systems.

Now the Program Compatibility Wizard is ready to test the program in Compatibility Mode. Review the settings you selected and click Next. The program will open on-screen. Run it through the paces, testing any feature that did not work before and making sure it performs as expected. If the settings did not correct the problem, return to the Program Compatibility Wizard and select the No Try Different Compatibility Settings option. When you click the Next button, you will have the chance to reset the environment and display settings. Retest the program until you're satisfied with the results.

Once you've found an environment that supports the program, close the program and return to the Program Compatibility Wizard. Select the Yes Set This Program To Always Use These Compatibility Settings option and click the Next button. Indicate whether you want to submit your settings to Microsoft (it really doesn't matter whether you choose yes or no) and click Next. Then, click the Finish button to close the wizard. You can reconfigure the Compatibility Mode for this program or set the Compatibility Mode for another program simply by running the Program Compatibility Wizard a second time.

The manual option. The hands-on alternative is to set the Compatibility Mode manually. This option is more convenient than and equally effective to using the Program Compatibility Wizard, but it requires you to know which operating environment will support the incompatible program.

To set the Compatibility Mode manually, locate the incompatible program on the Desktop or Start menu and right-click it. Select Properties from the pop-up menu. In the resulting dialog box, click the Compatibility tab to gain access to the program's compatibility settings. Select the Run This Program In Compatibility Mode checkbox, choose the appropriate OS from the drop-down menu, and then select the desired display settings. When you finish, click OK.

Open the program and give it a test run. If you're satisfied with the results, the program will run in the selected Compatibility Mode each time you open it. If it fails to perform in a way that satisfies your expectations, however, you'll need to repeat this process to reconfigure the compatibility settings.

■ **Beyond Compatibility.** The last thing you want to hear after dealing with compatibility issues is that another version of Windows is in the works. And yet it is: Microsoft reportedly has plans to release another OS in 2003 or 2004. The good news is that it should adhere closely to the WinXP model, and therefore, cause few compatibility issues with your existing software. LS

by Jeff Dodd

Create A Bootable Diskette

The Tool To Use When Your System Needs A Boot

Sometimes your computer needs a boot in the boot to get going. That's where the bootable floppy diskette comes in.

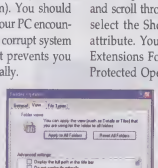
A **bootable diskette** is a 3.5-inch diskette that contains several key startup files for Windows XP. When you insert the bootable diskette into the floppy diskette drive, it overrides the system files stored on the hard drive and lets you boot (start) the OS (operating system). You should use the bootable diskette when your PC encounters a virus infection, disk errors, corrupt system files, or any other problem that prevents you from starting the computer normally.

Unfortunately, a bootable diskette probably did not come bundled with your computer when you purchased it. That means you have to make one on your own. All you need is a 3.5-inch diskette and access to a computer that has WinXP installed on it.

■ **Format & Copy.** The first thing you need to do is format the diskette. Formatting is the process of preparing a storage device to accept new data by erasing any old data on it. To format a diskette, insert one in the diskette drive and double-click My Computer on your Desktop. In the resulting window, locate the icon that represents your diskette drive—in most cases, it is the 3½ Floppy (A:) drive—and right-click it. Select Format from the pop-up menu. A Format dialog box will appear on-screen. The default settings are acceptable. Just make sure the Quick Format and Create An MS-DOS Startup Disk options are deactivated (meaning they don't have check marks next to them).

Click the Start button. A verification message will ask you to verify that you want to proceed with the procedure; click OK. You can expect to spend a minute or two waiting while the computer formats the diskette. Finally, a notification message will alert you when the format is complete. Click OK to close the notification message, and then close the Format dialog box.

Now you're ready to create the bootable diskette. In the My Computer window, select Folder Options from the Tools menu. From the Folder Options dialog box, choose the View tab and scroll through the list until you locate and select the Show Hidden Files And Folders attribute. You also should deselect the Hide Extensions For Known File Types and Hide Protected Operating System Files attributes. Click OK to accept the changes and close the dialog box.



You must reconfigure the hidden file and folder attributes in the Folder Options dialog box to access the files that belong on a bootable diskette.

Without removing the diskette from the diskette drive and while the My Computer window remains open, double-click the icon representing the **Windows drive** (the drive where Windows is installed). In the resulting window, locate and highlight the Boot.ini, Ntldr, and Ntdetect.com files (you can highlight multiple files by clicking each one while holding down the CTRL key on the keyboard). You also should highlight the Bootsect.dos and Ntbootdd.sys files if you see them listed along with the others. Your system may or may not include these last two files.

After highlighting the files, open the Edit menu and click the Copy command. Next, locate the diskette drive in My Computer—you may need to press the Back button or minimize the window on top to view all of the available drives—and right-click it. Select Paste from the pop-up menu. This transfers the copied files to the diskette in the drive. When the transfer is complete, remove the diskette from the drive and label it as the WinXP bootable diskette. If you wish, you can open the Folder Options dialog box again and return the hidden file attributes to their original settings.

■ **Boot & Start.** When you boot the computer with the bootable diskette in the diskette drive, the computer should start as it normally does. You then can use all of your system resources to resolve a troublesome situation. For example, you can run an antivirus utility to repair a virus infection in the **MBR** (master **boot record**; a set of instructions that tells the computer how to find and load the OS) or you can reinstall a corrupt file from the Windows installation CD-ROM.

Note that the bootable diskette differs from the MS-DOS startup disk (also referred to as a startup diskette). The startup disk contains all of the files needed to launch the DOS OS. When you boot the computer with the startup disk, you are taken to a DOS prompt from which you can access the directory structure and run basic DOS commands, such as FORMAT or COPY. You should use the startup disk when you are experiencing major problems with the OS and the bootable diskette proves worthless.

To create a startup disk, insert a blank diskette in its drive and double-click My Computer. Right-click the icon representing the diskette drive and select the Format command. In the resulting Format dialog box, select the Create An MS-DOS Startup Disk checkbox and click Start. Verify that you want to continue, and wait while WinXP creates the startup disk.

■ **A Way To Get Going.** Both the bootable and startup diskettes serve as keys to your system when Windows appears locked. It's important that you create them before you get locked out for good. LS

by Jeff Dodd

Have It Your Way

Design The Start Menu According To Your Needs & Preferences

Windows XP is cool. So cool, in fact, that you can customize almost anything about its interface and settings. Mix and match commands, change colors, hide programs . . . if you can think of it, WinXP can probably do it.

The Start menu is no exception. Microsoft certainly has its own ideas about how things should run, and it sets up the Start menu's default settings accordingly. But you do not have to live with Microsoft's choices. Instead, you can tailor things to suit yourself just fine, thank you.

As soon as you installed WinXP, you probably clicked the Start button to launch a program or see how things were set up. What you found were some similarities to earlier versions of Windows—but not many. True, you can still point to an option to see a cascading menu of related programs or documents, or click All Programs to view the installed software on your system. But the interface has a different look and feel. And the changes aren't just window dressing, either. WinXP's Start menu is task-oriented, and designed to open the door to a host of commands that let you customize how it operates. Here are a few tips and tricks to help you effortlessly get around and customize the Start menu.

1 Find a program. WinXP's default Start menu is pretty sparse. A series of objects, including My Computer and My Documents, appears on the right column of the Start menu's main area, giving you access to common tasks and objects that were accessible from the Desktop in previous versions. Sure, you can also keep these icons on the Desktop, but WinXP's inclusion of them on the Start menu opens another door.

The left column of the Start menu includes two distinct sections. The Pinned Items List appears above the separator line. By default, this list includes your email and browser clients. The area below the separator line includes programs you've recently accessed. You can launch programs that appear on either list by clicking them; you can access all the software on your system by clicking the All Programs button, and then choosing a program on the list.

2 Manage the Most Frequently Used Programs List. WinXP automatically places the most frequently accessed programs on your Start menu and shows them below the separator line on the Start menu's left column. When WinXP reaches the maximum number of programs placed here, it drops off the *least* frequently used program from the list.

But you can dictate the maximum number of programs that appear on the Most Frequently Used Programs List. To do this, right-click the Start button and choose Properties from the pop-up menu. Choose the Start Menu tab and click the Customized button. When the Customize Start Menu dialog box opens, choose the General tab and specify the number of programs (from 0 to 30) that you want to appear on the Start menu's Most Frequently Used Programs List. Click OK to close all dialog boxes and save your changes.

3 Start fresh. You can completely clear out the Most Frequently Used Programs List if you wish. Although this doesn't prevent WinXP from adding programs to the list (one by one, as you open them) in the future, it does start the list all over again from scratch.

To empty the existing list of frequently used programs, choose Properties again from the Start button's pop-up menu. From the Start Menu tab of the dialog box, click the Customize button to display the Customize Start Menu dialog box. Choose the General tab and click the Clear List button. Click OK to close all dialog boxes.

You also can manually remove individual programs from the Most Frequently Used Programs List without clearing the entire group. To do this, right-click the program you want to clear and choose Remove From This List.

4 Get a new identity. If you don't like the default name listed for a Start menu item, you can modify it. Keep in mind that renaming the item doesn't modify the underlying program, so it's not a risky venture.

To rename an item, right-click it from either the Most Frequently Used Programs List or the Pinned Items List, and then click Rename. Type a new name and press ENTER. Alternately, you can also right-click the item on the Start menu and choose Properties. Enter a new name in the text box at the top of the General tab and click OK.

5 Go large . . . or small. You can choose whether to use large or small icons on the Start menu. To do this, right-click the Start button and choose Properties. On the Start Menu tab, click Customize. From the dialog box that displays, choose the General tab and select the radio button next to Large Icons or Small Icons. Click OK to close both dialog boxes.

6 Take a shortcut. Each item on the Start menu includes a specific pop-up menu (sometimes referred to as a shortcut menu or context menu), custom designed to help you work with the program or task. For example, right-clicking My Music will display options such as Play and Add To Playlist; displaying the pop-up menu for My Network Places will yield a command called Map

Network Drive (but no commands related to playing music, of course). On the other hand, you'll also see many similar commands on pop-up menus for different Start menu items, such as the almost-universal Properties command that lets users tweak system settings for each Start menu object.

7 Choose browser and email clients. By default, the Pinned Items List includes icons for your browser and email applications. WinXP makes a guess as to which email and browser to include on this list, but if it can't decide which programs to show, you can.

Right-click the Start button and choose Properties, Start Menu tab, and Customize. Below the General tab of the Customize Start Menu dialog box, open the Internet and E-mail drop-down menus to choose which installed software you want to show on the Pinned Items List. In addition, you can remove these items from the Start menu altogether by deselecting the checkboxes for each one. Be sure to click OK to save your changes.

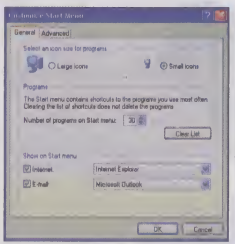
8 Pin a program. The items on the Most Frequently Used Programs List can potentially "float" on or off the list, depending on how often you access them. In contrast, the programs shown on the Pinned Items List are static and always appear on the Start menu. So, to customize this area of the Start menu, your best bet is to "pin" programs on the Pinned Items List.

Your first step is to locate the program you want to add to the Pinned Items List. The best places to find the program are: in the Frequently Used Programs List, in Windows Explorer, on the Desktop, or in the My Computer window. After you find the program, right-click it and choose Pin To Start Menu.

9 Modify the Pinned Items List. You're not stuck with the order that programs are shown on the Pinned Items List, either. You can easily change the arrangement by clicking and dragging any program to a new location within the list.

10 Remove an item from the Pinned Items List. You can remove a program from the Pinned Items List, keeping in mind that items on the Start menu are only shortcuts, so deleting them from the Start menu doesn't mean you're deleting the underlying program. So, no worries.

To remove a program from the Pinned Items List, right-click it on the list and choose Unpin From Start Menu. To remove the links for email or the Internet from the Pinned Items List, display the item's pop-up menu and choose Remove From This List.



The Customize Start Menu dialog box helps you design your own Start menu on Windows XP's clean, lean, and highly customizable canvas.

Right-click Start menu items and use the pop-up menu to quickly find commands.

11 Control program properties. Because WinXP is task-oriented, you can quickly display—and tweak—the exact settings for each program on your Start menu. To do this, right-click the program and choose Properties. The Properties dialog box for the program is where you can view or even change its settings.

For example, you can choose to have a program open in a minimized window or change the icon for the shortcut. In addition, some programs include a Compatibility tab in the Properties dialog box, which lets you troubleshoot compatibility problems between two versions of Windows or run the software using different display settings.

12 Change the look. To change the look of a Start menu item with a different icon, right-click the program and choose Properties. On the Shortcut tab of the dialog box that displays, click Change Icon and select an icon from the list (or choose Browse if you want to snoop through folders on your system and locate additional icons).

13 Sort the list. If you don't like the order in which your programs appear on the Start menu, you can sort them alphabetically. To do this, right-click a blank area in the All Programs list and choose Sort By Name from the pop-up menu.

14 Remove items from the All Programs menu. You can remove the shortcut to a program from the All Programs menu by right-clicking the object and choosing Delete. Then confirm your action by clicking Delete Shortcut.

15 Favor the Favorites. You can quickly add links to your Favorite folders and Web sites to the Start menu. To do so, right-click the Start button and choose Properties, the Start Menu tab, and Customize. When the Customize Start Menu dialog box opens, choose the Advanced tab, click the checkbox next to Favorites Menu, and click OK.

16 Set the style. Most people are content to use the new Start menu that WinXP hands them. But if you're a traditionalist, you may prefer to stick with the classic look instead.

To change the Start menu style, right-click the Start button and choose Properties. On the Start Menu tab, select the Classic Start Menu option. You won't be able to pin or unpin items if you choose this style, but you can still make modifications (and even add and remove items) by clicking the Classic Start Menu's Customize button and using the options available from the dialog box that displays on-screen.

17 Unclutter your life. By default, WinXP includes a number of objects

The Start menu can help you quickly access the documents you've worked on most recently.

in the right column of the main Start menu area, including My Music and My Network Places. If these items are cluttering the menu and getting in your way, you can delete them.

Once again, display the Taskbar And Start Menu Properties dialog box and click the Customize button. Choose the Advanced tab,

Taskbar and Start Menu Properties
Taskbar
Start Menu
Start menu
Select this menu style for easy access to the Internet, e-mail, and your favorite programs.
Classic Start menu
Select this option to use the menu style from earlier versions of Windows.
Customize...
OK
Cancel

Use the Taskbar And Start Menu Properties dialog box to switch back to the so-called "Classic" look.

scroll down the Start Menu Items list, and find the menu item you want to remove (such as My Pictures), and then select Don't Display This Item. Click OK to close all dialog boxes and save your changes.

18 Find a document. The Start menu can help you quickly access the documents you've worked on most recently. To use this feature, open the Start menu, click My Recent Documents to see the list of documents, and choose a particular document to open it.

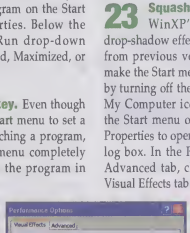
19 Control the My Recent Documents List. By default, the My Recent Documents List appears on the Start menu. However, if someone disabled the feature, here's how to reactivate it: Open the Taskbar And Start Menu Properties dialog box, choose the Start Menu tab, click Customize, choose the Advanced tab, and select the checkbox next to List My Most Recently Opened Documents.

If you want, you can also delete the items on this list. To do so, open the Customize Start Menu dialog box, choose the Advanced tab, and click Clear List. But don't worry, this doesn't delete the items from your system; it simply removes them from the list.

20 Control a program's settings on startup. By using Start menu options, you also can manage how programs launch. For example, to make a program display in a minimized window when you start it, right-click the program on the Start menu, and choose Properties. Below the Shortcut tab, open the Run drop-down menu and choose Minimized, Maximized, or Normal Window.

21 Set a shortcut key. Even though you can use the Start menu to set a keyboard shortcut for launching a program, you can bypass the Start menu completely when you want to launch the program in the future.

To do this, right-click the program on the Start menu and choose Properties. From the dialog box, choose the Shortcut tab, click inside the Shortcut Key text box, and then press the actual keyboard shortcut you want to use (such as CTRL-SHIFT-3). Make sure another Windows program doesn't use the keyboard shortcut you chose, and click OK. To test your new setting, press the keyboard shortcut to launch the program.


Performance Options
Visual Effects
Advanced
Select the settings you want to use for the appearance and performance of Windows on this computer.
Let Windows choose what's best for my computer
Adjust for best appearance
Adjust for best performance
Custom:
Animate windows when maximizing and minimizing
Fade or slide ToolTips into view
Fade out menu items after clicking
Show shadows under menus
Show shadows under mouse pointer
Show translucent selection rectangle
Show window contents while dragging
Slide open combo boxes
Slide taskbar buttons
Smooth edges of screen fonts
OK
Cancel
Apply

Get rid of splashy visual effects and make your menu snap to attention.

22 View submenus easily. You can change various settings so that the cascading submenus for items on the Start menu appear whenever you rest your mouse pointer over their names. From the Advanced tab of the Customize Start Menu dialog box, select the checkbox next to Open Submenus When I Pause On Them With My Mouse. Click OK.

To test the setting, point to an item on the Start menu that includes a submenu, and the associated items will display. Of course, you also can reverse this process to turn off the automatic display of submenus. But if you do so, you'll have to go back to clicking the submenu name to view the associated submenu.

23 Squash the shadow. By default, WinXP's Start menu includes a drop-shadow effect, distinguishing it visually from previous versions. However, you can make the Start menu open more responsively by turning off the feature. Just right-click the My Computer icon (on the right column of the Start menu or the Desktop) and choose Properties to open the System Properties dialog box. In the Performance section of the Advanced tab, click Settings. Then, on the Visual Effects tab of the Performance Options dialog box, deselect the checkboxes next to Fade Or Slide Menus Into View and Show Shadows Under Menus. Click OK to save your changes and close the dialog boxes.

■ **Time To Customize & Organize.** Armed with these tips, take the time to put a new face on your Start menu. Place program shortcuts where you can find them most quickly. Alphabetize its numerous items for easy access. Quicken its response time. Be creative. But most of all, make it reflect what *you* think the Start menu should look like. LS

by Linda Bird

Refined Searching

Get The Most Out Of The Indexing Service, Search Companion & Internet Explorer

Windows XP is a big OS (operating system). With almost a gigabyte's worth of system files and a revamped Start menu and folder hierarchy, you can get lost if you're not careful. A few tips and tricks for faster, easier, and more powerful searching can go a long way toward helping you find your way around. This article will discuss a few of our favorites, including a discussion of the Indexing Service, some important information about getting the most out of Internet Explorer searches, and some handy features of the new Search Companion.

1 Start by turning on Indexing Service. The Indexing Service is a new feature designed to make your searches much faster and more powerful by building up a catalog (or index) of information about all the user-modified documents in your system, including HTML (Hypertext Markup Language) files, email, text documents, and all Microsoft Office files. Later searches for these files only require the OS to check a single spot on your hard drive, which leads to scorching speed and efficiency.

The downside? The Indexing Service works in the background, which might hurt your computer's performance (maybe only slightly, depending on your system) by consuming system resources. Plus, you'll pay another small price in hard drive space, which amounts to about 15% to 30% of the size of the cataloged files. You can turn Indexing Service on and off by clicking Search from the Start menu, clicking the Change Preferences option in the Search Companion, and then selecting the With Indexing Service option. Here, you can activate and deactivate the service or access advanced options.

2 Make sure Indexing Service indexes specific folders. The Indexing Service will find all the files you save on your primary hard drive or partition (usually C:), but it might miss folders in more obscure corners of your system. You can add folders individually to a catalog by right-clicking My Computer on your Desktop and selecting Manage. When the Computer Management window opens (you must be the administrator to have access), double-click Services And Applications in the left pane (called the console tree) and select Indexing Service to highlight it. Then, open the Action menu and click New, Catalog. Browse for a folder you want to add, select it so it appears in the Location field of the Add Catalog dialog box, name the catalog, and click OK.

After your new entry appears in the pane on the right, you can add more folders to this catalog by double-clicking the entry, selecting the Directories folder, opening the Action menu, and clicking New, Directory. Although you can add any folder in this manner, this process also is a good way to make sure the Indexing Service indexes mapped network folders you have.

You also need to be sure to turn on the cataloged properties (size, author, etc.) you want to be able to search for later because only a few are active by default. The process of turning one on is called "adding a property to the cache." Once again, open the Computer Management window, double-click Services And Applications, and select Indexing Service. The default catalog, System, includes everything on your primary drive. Double-click it, double-click the Properties folder, and scroll through the properties shown in the right pane. Only the properties labeled Primary or Secondary will be cataloged. To add another one, right-click it, click Properties, select the Cached checkbox, and click OK. The more properties you add, the easier you can retrieve information later on; but, at the same time, your catalog grows heftier with each one.

3 Tune your search instrument. You can adjust the frequency with which the Indexing Service scans the hard drive for modified files in the Computer Management console. Right-click My Computer and select Manage. Next, from the Computer Management window, double-click Services And Applications in the left pane, select Indexing Service to highlight it, open the Action menu, and then click All Tasks, Tune Performance.

You can use one of the default frequencies (such as Used Often or Used Occasionally) or fine-tune your usage preferences with the Customize buttons. Using the sliders, set your preferences accordingly and click OK.

4 Learn a new language. With the Indexing Service query language, you can perform highly customized searches far more exotic than those available through the Search Companion. The query language is based on a series of tags and properties (much like HTML) that yield specific file information, including the time it printed last, its number of words, its time of creation, its author, and much more.

For example, to find all the documents with 1,000 words or fewer that printed in the last 12 hours, open the Search Companion (click Search from the Start menu), click All Files And Folders, and type the following search phrase into the A Word Or Phrase In The File field:

{prop name=DocLastPrinted} > -12h {/prop} AND NOT {prop name=DocWordCount} > 1000 {/prop}

To learn the query language, open the Search Companion again, click Change Preferences, and click With/Without Indexing Service. Next, click Learn More About Indexing Service. In the window that appears on-screen, you'll see a Help file explanation that's much more extensive than you'll likely find in Help And Support.

5 Try the Classic Internet Search. Even if you're happy with IE's default Search Companion, you should give Classic Internet

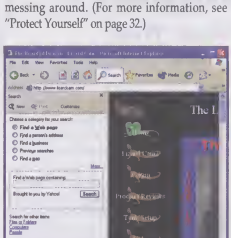
Search a trial run. From Search Companion, click Change Preferences, click Change Internet Search Behavior, select the With Classic Internet Search radio button, and click OK.

With this more flexible search (which you'll see after making the change, launching IE, and clicking Search from its toolbar), you can choose one of several categories (Web pages, people, businesses, previous searches, and maps) to refine your search. And if you click the More option, you can include the categories of pictures and online dictionaries. Each category uses a different search engine, so take advantage of the strengths of each for different types of searches. To specify search engines, click Customize. Then, back in the Classic Internet Search Bar, click Next whenever you want to try another search service for the same query.

6 Search the Internet directly from your Taskbar. You can add an Address toolbar to your Taskbar by right-clicking it and choosing Toolbars, Address. (If the icon that appears doesn't respond when you click it, unlock your Taskbar by right-clicking it and deselecting Lock The Taskbar.)

Adding an Address toolbar means that, in addition to accessing URLs (uniform resource locators) and folders directly from your Taskbar, you can now take advantage of IE's Autosearch feature (see the "Get It To Go" sidebar).

7 More Address toolbar shorthand. You can take searches even further from the Address toolbar by defining your own keywords, which lets you search with any engine you choose with a few deft keystrokes. Doing so involves editing the Registry, though, so be careful. Editing the Registry can cause irreparable system damage and force you to reinstall WinXP. So, proceed with caution and make a backup copy of your Registry before you start messing around. (For more information, see "Protect Yourself" on page 32.)



The Classic Internet Search lets you choose different search engines for each type of search.

When you're ready, click Run from the Start menu, type **regedit**, and click OK. Navigate to HKEY_CURRENT_USER\SOFTWARE\MICROSOFT\INTERNET EXPLORER\SEARCHURL, create a new key under the SearchUrl folder (using New from the Edit menu), and name the key after one of your favorite search engines. For our example, we'll name our key "goog" as an abbreviation for Google.

Next, click your new key and look in the details pane on the right side. Here, you should see the name "(Default)" and the value "(value not set)." Right-click "(Default)," select Modify, and set the Value Data field for this key to the URL of the associated search engine running the query, adding "%s" to the end of the URL (without the quotes). So, for our Google example, we'll type **http://www.google.com/search?q=%s** in the field to set the value (you can figure this out for other engines by just watching the Address field while they're running a query).

Now you can launch IE and type **goog New Jersey** in the Address field to see what Google has to say about the Garden State. Cool, eh? Using the method we just described, you can define as many keywords as you wish.

8 Beat a common error message. If Search Companion is taunting you with the error message, "A File That Is Required to Run Search Companion Cannot Be Found," we'll tell you how to put a stop to it.

First, log on as administrator, click Run from the Start menu, type **%systemroot%\inf**, and click OK. Right-click the Schsast.inf file and then click Install. That's it; you're done.

9 Extend your searches to hidden files and folders. Microsoft doesn't trust you to keep your greasy paws out of sensitive system files. But if you trust yourself, open the Search Companion (click Search from the Start menu), click All Files and Folders, scroll down until you see More Advanced Options, and click it. Next, select the checkboxes next to Search Hidden Files And Folders to let yourself access them. Then, finish filling in your query as usual before clicking the Search button.

Please note that this is not the same as viewing hidden files and folders, an option you can set from the Folder Options dialog box (click Folder Options from the Tools menu).

■ **Search Faster, Search Better.** Unless you have a large database of files you search through regularly, learning the Indexing Service query language may not be worth your time, but all users should know how to tailor system and Internet searches according to their own specifications. Plus, it's a good idea to spend a little time playing with all of your options in the Search Companion. By doing so, you'll save time and encounter fewer hassles in the long run. LS

by Ryan Turner

Get It To Go

Internet Explorer's Autosearch feature is the fastest way to perform a general search with a single search engine. When you type **go** and a search query in the Address field of your browser's Address toolbar, IE will send this information to a search engine and display the results in the center of the screen (not over in the Search Bar). You can also type **find** or type **?** (or omit the keyword altogether) before typing your query in the Address field, but this type of search takes longer because IE will first hunt for a URL (uniform resource locator) with the same name as your query and only send it to the search engine if this fails.

You can pick the search engine you want Autosearch to use (the default is MSN [The Microsoft Network]) by clicking Customize from IE's Search Bar, and then clicking the Autosearch Settings button in the dialog box that appears on-screen. From the Customize Autosearch Settings dialog box, use the drop-down menus to make your selections, and click OK to save your changes.

Note that Microsoft also has mixed in a few other gimmicks with the "go" keyword. For example, type **go email** to jump to your MSN Hotmail account or type **go msft** for the latest Microsoft stock quote. ☐

Find, Install & Use Backup & Restore

Take Advantage Of Tools That Will Bail You Out In Times Of Need

Many of us realize the importance of backing up data on our PCs, but few spend the relatively small amount of time it takes to back up our files or maintain a backup plan—at least until a hard drive crashes. That's when we really start to take notice.

If you're lucky, you may only need to spend a few hours restoring your PC to full functionality by reinstalling the OS (operating system) or retyping a lost document. If you're not so lucky, you could lose important tax documents, detailed financial statements for your business, or that novel you just finished writing last weekend after three years of work. Worse yet, you could lose all of this and more—you could lose *everything*.

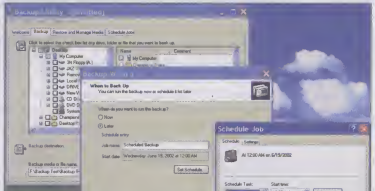
Backing up your data is like changing the oil in your car: It should be a regular part of maintenance. And if you use Windows XP, you don't need to purchase extra software to back up your system.

Find The Backup Utility.

WinXP Professional installs the Backup utility (also called the Backup & Restore utility) by default. You'll find it in the Start menu by selecting All Programs, Accessories, and System Tools.

The WinXP Home Edition does not install the Backup utility by default, nor can you install it by using the Add Or Remove Programs applet in the Control Panel. You'll need to insert the WinXP Home installation CD-ROM into your disc drive and browse to X:\VALUEADD\MSFT\NTBACKUP (with X representing the letter assigned to your disc drive). From the NTBackup folder, double-click the Ntbackup.msi icon to install the Backup utility.

We should warn you, however, that WinXP Home doesn't support all the features in the Backup utility. (WinXP Pro users don't need to worry about this, however. The Backup utility and its features work fine on WinXP Pro systems and Microsoft does support this use.) The Readme.txt file found on the WinXP Home CD-ROM (located in the NTBackup folder) says that although ASR (Automated System Recovery) is part of the Backup utility, Microsoft doesn't support its use while using its Backup utility on WinXP Home systems (which is why the Backup utility isn't installed by default on WinXP Home in the first place).



Putting your computer on a schedule with the Backup Wizard and Schedule Job options reduces the headache of making backups manually.

So, even though other features of the Backup utility work reasonably well with WinXP Home, the ASR feature doesn't. If you use WinXP Home, you can still use the Backup utility to back up WinXP and your data, but in the event of a crash, you must reinstall WinXP from your installation CD-ROM, and then use the Backup utility to restore your OS and its related files.

Unfortunately, some PC manufacturers don't include a WinXP CD-ROM with their computers. Instead, many of them include a type of restore CD, which you (typically) can use to boot the computer and restore the OS, along with all the programs originally installed on the PC as it came from the factory. If you have a PC that came bundled with a restore CD instead of a copy the WinXP installation CD-ROM, your only option is to purchase a copy of WinXP or consider using third-party backup programs. In addition, Microsoft doesn't make the Backup utility available for users to download.

Know Your Backups.

Now that you've decided (hopefully) to be proactive about backing up your data, you need to learn about the different methods of backing up data and the strategies for using those methods. In the Information Technology world, there are three basic types of backups: full backups, incremental backups, and differential backups. To minimize the amount of time spent backing up data and managing libraries of. backups, it's important to learn about these different types of backup procedures and the strategies for using them.

Full backups back up all data (every single document) in a designated directory, set of directories, or an entire hard drive, and requires the most storage space and time to perform. Restore CDs included with many PCs are a good example of a full backup. In the event of a system crash, you can use the restore CD to restore your computer's OS and other programs to their original, factory-fresh installation. Unfortunately, if the restore CD is your *only* backup and your PC crashes six months later, the restore CD may return your

The primary reasons behind using different backup procedures *are avoiding unnecessary work, preserving network bandwidth, and making file restoration as quick and easy as possible.*

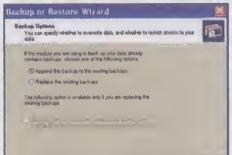
PC to functionality, but you lose all the changes, newly installed programs, and data files acquired since you first purchased the PC (ouch!).

To reduce the time spent making backups, there are additional methods of backing up data you may want to use. **Differential backups** back up all data that has changed since the last full backup. For example, let's assume you make a full backup of your system, and then make a differential backup one week later. If your system crashes the very next day, all you need to do is restore your full backup first and then restore the differential backup, and you're only out one day (or less) of work. If you hadn't made the differential backup, you could only restore the last full backup, and you'd be out a full week's worth of data.

Incremental backups are similar to differential backups, but they only include backup data that has been changed or modified since the last backup procedure. Incremental backups require less time to create and less storage space than full backups and differential backups, however, there is a down side. Returning to our previous hypothetical scenario, let's assume that instead of differential backups, you've been making incremental backups every night for seven days straight. On the eighth day, your PC crashes. Now you will have to restore your most recent full backup, and then restore each and every incremental backup, in the correct daily order, for a total of eight restore procedures, to get your PC back to where it was before the crash.

To sum up our explanation of these different types of backups: Full backups take the most time and space; incremental backups require the least amount of time and space, but are harder to manage (because you must store them chronologically); and differential backups require more time and space than an incremental backup, but are easier to manage.

When you run WinXP's Backup utility, you will encounter its five different backup procedures (don't worry; you've already learned about three of these): Normal, Daily, Copy, Incremental, and Differential. The Normal backup is the same as a full backup. And we've already covered incremental and differential backups, which are the same as the Backup utility's Incremental and Differential backups. The Copy backup procedure backs up files, but it doesn't mark them as being backed up. The Daily backup is similar in that


Backup or Restore Wizard
Backup Options
You can specify whether to overwrite data, and whether to restrict access to your data.
If the medium you are using to back up your data already contains backups, choose one of the following options:
Append this backup to the existing backups
Replace the existing backups
The following option is available only if you are replacing the existing backups:
< Back
Next >
Cancel

From the Backup Or Restore Wizard, you can append your backups if you don't want to overwrite a previous backup. But if it's time to recycle your media, choose the second option and overwrite a previous backup.

it only backs up files modified within the space of a single day, but like the Copy backup, it doesn't mark the files as backed up.

If you're starting to get confused, that's OK—so were we. The truth is that Copy and Daily backups are somewhat unnecessary "Microsoft clutter" as far as backup strategies are concerned. Most, if not all of us (especially more advanced users), can get by with the Backup utility's Normal, Incremental, and Differential backups alone. However, if you'd like additional information about backup procedures, see the Microsoft's Knowledge Base article on the topic at http://support.microsoft.com/default.aspx?scid=kb;EN-US;q136621.

■ **Define Your Strategies.** The primary reasons behind using different backup procedures are avoiding unnecessary work, preserving network bandwidth, and making file restoration as quick and easy as possible. There's nothing wrong with doing a Normal (full) backup every day, but the process is extremely time consuming and drags a network to its knees, particularly when backing up hundreds of gigabytes of data across multiple servers or workstations. Use the Backup utility's Differential and/or Incremental backups in conjunction with Normal backups to alleviate these problems. Fortunately, casual home users don't need to concern themselves with overly complex backup strategies. If all you do is a monthly full backup of your entire system, you're ahead of the average user. However, if losing a month's worth of work scares you, you should make additional backups more frequently. Ask yourself this: If your computer's hard drive crashed *right now*, how much time (and money) would it take you to get your PC back in working condition, with all your programs and data restored? If your knuckles turn white and the icy finger of paranoia taps you on the shoulder while pondering the ramifications, you'd better start thinking about a backup plan *ASAP*.

Casual users should probably consider performing one full backup weekly, which means you could lose one week of data at the most if the unthinkable happens. If this sounds like too much data to lose, add one differential backup performed in between each full backup, and you've reduced your potential data loss to three and half days.

If this is still too much data to lose, consider performing full backups every three or four days, with differential or incremental backups performed between each full backup. The amount of data you have and how valuable it is to you will ultimately help determine how frequently you should be backing up your data.

■ **Manage Data Backups For Storage.** Other considerations you need to make are managing all the backups you make and how long to keep them in storage. Unless you need to maintain large file archives for extended

Advanced users might prefer to deselect the Always Start In Wizard Mode checkbox from the Backup Or Restore Wizard and restart the Backup utility.

By disabling the automated Wizard mode and using the Advanced mode, you'll be able to dig into the advanced features of Windows XP's Backup utility more easily.

periods of time, you can probably recycle the media (tapes, Zip disks, Jaz disks, CD-RWs [CD-rewriteables], etc.) on which you store backups every 30 days.

For example, if you make full backups of your system each week, with differential backups in between, and store each backup on a separate Jaz disk, you'll end up with a total of eight Jaz disks at the end of the month. When it comes time to back up your data again, recycle the Jaz disk with the oldest backup copy first. This strategy saves money by reusing media instead of continually buying new media. How long you retain your backups before recycling media depends on the type of data you back up and how valuable it is. Some users may need to retain backups longer than 30 days.

Now that we've covered the basics of backup methods and strategies, let's put them to work with some tips for using WinXP's Backup utility.

1 Disable the wizard. WinXP's Backup utility runs in Wizard mode the first time you run it. Advanced users should disable Wizard mode to take advantage of more advanced features, such as media management and backup scheduling. Deselect the checkbox next to Always Start In Wizard Mode and click Cancel. Now run the Backup utility again.

2 Schedule backups. Creating a backup schedule automates backup procedures and eliminates any guesswork involved with remembering what the Backup utility has and hasn't backed up. (It also means you have even fewer excuses for not making backups.)

To schedule a backup procedure, run the Backup utility. You should see a Schedule Backups tab. (If not, refer to Step 1). Choose the Schedule Backups tab to view a calendar, and then click the box for the day you wish to schedule your backup. Click the Add Job button, which will then start the Backup Wizard.

Open the Schedule Task drop-down menu to choose a time frame for your backups (Daily, Weekly, Monthly, Once, At System Startup, At Logon, and When Idle), and then choose a Start Time.

If you choose to back up files on a weekly or monthly basis, select the exact time and date you want the Backup utility to run, as well as how frequently the procedure will run. You could have full backups made every Monday, Wednesday, and Friday, or make monthly backups on the 13th of every month or only on the first Wednesday of every month. The best strategy is to schedule backups to run during a time frame when you know you'll be away from your computer.

3 Choose the "write" media. The WinXP Backup utility will not write data directly to a recordable or rewriteable CD or DVD. So, if you plan to use this type of media for backing up data, you need to first back up the data to another location (such as another hard drive), and then manually copy the backup file to the recordable or rewriteable CD or DVD.

If this added step takes some of the wind out of your backup sails, you should consider another form of backup media. Depending on how much data you need to back up, Zip disks or Jaz disks may be sufficient. However, with hard drives *starting* at 20GB for most new computers sold today, it's unlikely that Zip disks or Jaz disks will suffice for long. You might want to consider high-capacity tape drives (which can store 50GB or more), external USB (Universal Serial Bus) or IEEE 1394 (also referred to as FireWire) hard drives, or secondary internal hard drives.

4 Manage your media. Click the Restore And Manage Media tab in the Backup utility to view a catalog of all the backup procedures you've run, the dates on which you ran them, and the drive to which the backups were copied. You can use this log to help you track down older files and restore them if need be.

Click the Restore Files To drop-down menu. Here, notice that you can choose to restore a backup to a single folder on your hard drive or to a different location altogether. This is a useful alternative should you find yourself needing a copy of a file from three months ago (assuming you haven't recycled your backup media from then). You can restore the file to a Zip disk, another hard drive partition, or any folder on your hard drive that has sufficient space to recover the file.

Another important use for the Restore And Manage Media tab is testing your backups. If your data is very valuable, be sure to test your backups after you make them. A corrupt backup that cannot be restored is useless.

5 Use ASR faithfully. The ASR is a wizard that does two things: one, it creates a floppy diskette with all of your WinXP system settings (similar to a WinNT/2000 Rescue Disk); and two, it backs up your OS and all your data. In the event of a system crash, you can use the ASR to restore your system, as long as you have the recovery diskette, the backed up data (stored on removable media, such as CD-RWs), and your WinXP installation CD-ROM.

Put the WinXP CD-ROM into your disc drive and start your computer. Press F2 at the prompt and insert your ASR recovery diskette into the diskette drive when asked to do so. ASR then performs a basic WinXP installation, using the data on the ASR diskette to restore system files, and then it automatically restores your data. Remember that the ASR portion of the Backup utility only works with WinXP Pro; it doesn't work with WinXP Home.

■ **Your Backup Plan.** Although learning backup terminology and strategies may seem daunting, it is well worth the time to familiarize yourself with the process, and WinXP's Backup utility makes backing up your data easier than ever. The initial time you invest scheduling backups and maintaining a backup plan is more than worth the extra effort if you are unfortunate enough to experience a major system crash. LS

by P. Bryan Edge-Salois

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Set Up A Dual-Boot System

Give Your PC Some OS Options

Traditional wisdom says that two heads are better than one. The modern computer user may take that adage one step further and say two OSes (operating systems) are better than one. Indeed, having an extra OS offers some advantages, and the most recent hard drives have plenty of storage space to accommodate multiple versions of Windows. With a little guidance, you can have a dual-boot system up and running in no time.

■ **Advantages.** As the name implies, a dual-boot system lets a user boot the computer into two or more OSes (although some users might refer to computers with three or more OSes as multi-boot systems). The OSes are installed on separate drives or **partitions** (areas on a hard drive that function as discrete units). Each time you boot the computer, you'll see a menu of OSes from which you can choose the one you want to use. Dual booting is certainly not for everyone, but advanced users can benefit greatly from a configuration that provides ready access to more than one OS.

Who would need such access? For starters, anyone who has an extensive collection of **legacy** (old but useful) software or hardware that may conflict with a new OS, as happens when users upgrade from Windows Me to Windows XP or from Windows 98 to Linux. (See "Computing Without Conflicts" on page 45 for more information about compatibility issues with WinXP.) Similarly, users who install a lot of games and downloadable shareware will benefit from a dual-boot system that provides access to several common OSes.

Another group of users that may benefit from dual booting are those who share PCs with others. A dual-boot system lets each user access the OS that best suits his or her purpose. The OSes can load with unique sets of applications and utilities, as well as hardware components. Some users even choose to create a dual-boot system with a version of Windows and Linux. In some situations, a dual-boot system might be the best thing since his and her bathrooms.

Having said that, dual booting is not for everyone. It certainly has its advantages in the right situations, but most users do not need the hassle of managing multiple partitions, synchronizing data files, and trudging through the extra step of selecting an OS every time the computer starts. And don't even think about undoing a dual-boot installation. The process is quite difficult and involves the manual removal of individual files and folders. For this reason, we do not recommend a dual-boot system for users who have minimal computing needs or want to keep their computing experience as simple as possible.

■ **Step Forward.** If you are one of the advanced users who will benefit from a dual-boot configuration, you need to ensure that your system is capable of supporting it. Your PC must meet the recommended system requirements both OSes dictate. The computer also must have enough storage space to accommodate both OSes. We recommend setting aside at least 1GB of storage space in each partition that will accommodate an OS. Finally, you need full installation versions of each OS; the upgrade installation versions will not be enough.

Ideally, you would establish a dual-boot configuration on a fresh, clean system that has no OSes installed on it. In such a situation, you'd have complete freedom to partition the hard drive(s) according to your needs and install the OSes in the recommended order (Microsoft suggests installing OSes in this order: DOS, Win9x, WinMe, WinNT, Win2000, and WinXP).

It's unlikely that you will ever set up a dual-boot system under these circumstances, though. The more likely scenario is that you will decide to dual boot as an alternative to upgrading—and thereby losing access to—your PC's existing OS. In this situation, it seems most efficient to leave the existing OS where it already resides on the hard drive and add the new OS alongside it.

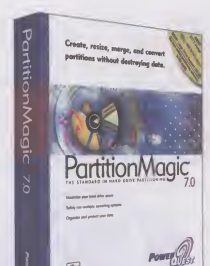
Adding a second OS is a viable option as long as you have a free partition to accommodate it. If you don't have a spare partition on your system, the solution is to make a small investment, either in third-party partitioning software or a second hard drive. Both are adequate solutions.

Partitioning software, such as PartitionMagic from PowerQuest ($69.95, http://www.powerquest.com) and System Commander (which includes Partition Commander) from VCOM ($69.95, http://www.v-com.com), will help you partition a hard drive without affecting the existing data on it. A second hard drive completely bypasses the partitioning requirement. Once installed, the hard drive is ready to accept a new OS (although we recommend dividing a drive into multiple partitions when you install it).

If you feel confident enough to install a second hard drive, we suggest going that route. Not only do you end up with more overall

storage space, but you also can get the drive for about the same price as the partitioning software. A standard-issue 20GB **EIDE** (**Enhanced Integrated Drive Electronics**; a drive interface standard for connecting storage drives to a motherboard) drive that spins at 5,400rpm (revolutions per minute) sells for approximately $75 at most retail outlets. Of course, you have no choice but to buy the partitioning software if you don't want to dig inside your PC case to install the second hard drive or if your case does not have room to accommodate another drive.

Regardless of whether you get the second hard drive or the partitioning software, you need to end up with one primary partition for each OS you plan to install on your computer. We recommend creating an additional partition that you can use for storing data files or installing another OS in the future. Refer to the users manual that came with your partitioning software or hard drive to learn how to create the necessary partitions.

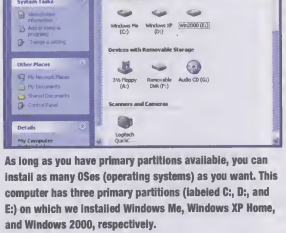


Third-party partitioning software, such as PartitionMagic from PowerQuest, simplifies the process of preparing your computer to accept another OS (operating system).

■ **Install WinXP As Your Second OS.** Once the partitions are in order, you can begin the work of installing your second OS. Most users who set up a dual-boot system today will add WinXP to a system that already has Win9x, WinMe, WinNT, or Win2000 on it. For this reason, we will explain how to configure WinXP as the second OS on your PC.

The first step is to back up all the existing data files stored on your system. Even though the installation of a second OS should not have any affect on the status of these data files, it's wise to prepare as if there might be problems. Back up the files and then deactivate any security or antivirus software that could interfere with the installation of a new OS. The installation of a new OS requires changes to the existing **MBR** (master boot record; a set of instructions that tells the computer how to find and load the OS), and some security and antivirus programs are designed to prevent that from happening.

Now you're ready to install WinXP to an available primary partition on the hard drive (if you installed a second hard drive and did not partition it, the entire drive is considered a primary partition). This is the easy part. Close all open applications and insert the WinXP installation CD-ROM in the disc drive. As soon as the computer begins to read the disc, the WinXP Setup window will appear on-screen.



As long as you have primary partitions available, you can install as many OSes (operating systems) as you want. This computer has three primary partitions (labeled C:, D:, and E:) on which we installed Windows Me, Windows XP Home, and Windows 2000, respectively.

Follow the prompts to proceed through the early part of the installation. You need to accept the terms of the end-user licensing agreement and enter the 25-character product key. Review the setup options to determine which features and language you want to install. If you have Internet access, opt to download the updated setup files and wait while WinXP Setup restarts your computer.

When Setup resumes, the computer will give you the choice of continuing with the setup process or booting to your existing OS; choose the former option. Press ENTER to indicate that you're ready to proceed with the installation of WinXP.

Finally, you'll reach a screen that asks you to select the partition where you want to install the new version of Windows. All the available drives and partitions will appear on-screen; highlight the one you want and press ENTER. Setup will install the OS. When your computer restarts, you will have the option of booting to the old OS or WinXP.

The final step in setting up a dual-boot system is to customize the menu of OSes that appears each time you start your computer. From within WinXP, open the Control Panel and select the Performance And Maintenance category. In the resulting window, click the System icon to access the System Properties dialog box. Choose its Advanced tab, locate the Startup And Recovery section, and click the Settings button.

From the Default Operating System drop-down menu, highlight the OS you plan to use most of the time. The OS you select here will be the one highlighted as the default selection on the menu of OSes that appears whenever you boot the computer. You also can specify how long the computer should wait before booting the selected OS. Click OK to save your settings.

The only things left to do at this point are create a bootable diskette and install software on the new OS. A software installation is necessary, even if you have the programs installed on the previous OS, because OSes cannot share most applications and utilities (they can share data files, however). This process may take a long time to complete, depending on how many programs you need to install. As for the bootable diskette, refer to "Create A Bootable Diskette" on page 48 for instructions on how to create one. You only need to create one bootable diskette for all of your OSes.

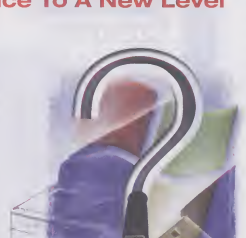
■ **Duly Noted.** The process of creating a dual-boot system takes some time—you can expect to spend at least half of a workday to do the job properly—but it is not difficult. By the time you finish, you may be ready to add a third OS to your PC. LS

by Jeff Dodd

Add USB 2.0 Support

Bring Your XPerience To A New Level

The future of personal computing has USB 2.0 (Universal Serial Bus 2.0) written all over it. Unfortunately, the code for Windows XP does not. Users who hope to benefit from the expeditious throughput of the hot-pluggable interface standard will have to take matters into their own hands and install it themselves.



All About USB 2.0. USB began to make its mark on the computer world in the mid-1990s. Developed as an alternative to the external parallel and serial port interfaces, this **bus** (an electronic connection that carries data between hardware components) offers faster data transmission rates than its competition. USB also supports **hot plugging** (installing a new hardware component without restarting the computer) capabilities and **daisy chaining** (connecting a string of hardware components in a series, like links on a chain).

The standard offers cross-platform compatibility, meaning the same USB device that works on a PC can be ported to a Macintosh and work just as well. As if that isn't enough, the USB interface is capable of carrying a small electrical current—500 milliamps or 0.5 amps—to fuel low-voltage peripherals, including power-efficient storage devices.

With so much to offer, USB has become a popular interface for connecting digital cameras, scanners, printers, storage devices, and networking equipment to PCs. The most common USB interfaces support version 1.1, which has a maximum throughput of 12Mbps (megabits per second). USB 1.1 devices connect to a 4-pin socket the size of a pencil eraser. You can purchase almost any PC peripheral, including sound cards and storage drives, for connection to a USB 1.1 port.

USB 2.0 (also referred to as Hi-Speed USB) is the long-awaited successor to 1.1. Fully backward compatible with USB 1.1, version 2.0 is nearly identical to its predecessor in shape and function except that it offers data throughput at speeds of 480Mbps (which is 40 times faster than USB 1.1). This is fast enough to accommodate high-volume data transfers, such as those you might encounter when transferring video footage from a DV (digital video) camera or burning data to a CD-R (CD-recordable) in a CD-RW (CD-rewriteable) drive. Likewise, the higher throughput of USB 2.0 means better performance for multiple devices connected to a single port. This may be where its real value lies.

The Best Upgrade. When it comes to adding devices to a PC, computer users have had to choose between the convenience of an external upgrade and the performance of an internal upgrade. Internal components, which connect directly to the motherboard's high-speed PCI (Peripheral Component Interconnect) and AGP (Accelerated Graphics Port) expansion slots, offer a level of performance that cannot be achieved through connection to an external port. External components, on the other hand, can be added to a PC in a matter of minutes with little difficulty. Indeed, the advent of hot-pluggable technologies such as USB 1.1 have made it possible to upgrade a fairly complicated device, such as a CD-RW drive, without even rebooting the computer.

IEEE 1394 (the standard name for an external bus Apple developed and named FireWire, which carries data at rates of 400Mbps; also referred to as i.LINK) was supposed to resolve this conflict. The high-speed interface offered the convenience of an external port, as well as throughput speeds that provide impressive device performance. However, computer manufacturers were hesitant about investing in the technology for a variety of reasons, some practical (such as concerns about licensing costs) and some political (such as concerns about it being perceived as an Apple Macintosh technology).

Fortunately, USB 2.0 hasn't been saddled with that kind of baggage. Thanks to its impressive speed, which outpaces even IEEE 1394 at this point, USB 2.0 makes it possible to get excellent performance in the body of an external component. Better yet, you can get the components at reasonable prices. That leaves you more money for buying more components, and USB 2.0 can handle them all. With room for 127 devices on a single port, there's no need to worry about running out of expansion slots or drive bays.

Even so, for the sake of accuracy, let us make clear that no external port—not even USB 2.0 or IEEE 1394—can offer the kind of throughput speed that an internal PCI or AGP port can provide. Nevertheless, the high-speed external interfaces can provide a level of performance that makes the difference between the internal and external data transmission rates seem insignificant.

The advent of USB 2.0 lets PC manufacturers rethink the design of the beige box. The UNIMOD, designed by Palo Alto Products, is just one of the concept PCs that incorporate the new technology.

Stay 2.0 Steps Ahead. USB 2.0 virtually eliminates the stress of upgrading, and for that reason alone, you should consider the one upgrade that will let you take advantage of it. All you need are two things: a computer that has an external USB 2.0 port and an OS (operating system) that supports it.

Although computers have come equipped with USB ports since 1996, it is only recently that computer manufacturers have begun to build

their products with USB ports that support the 2.0 standard. The documentation that came with your PC will indicate whether your PC has one of the compliant ports. If your computer doesn't, you'll have to purchase and install a USB adapter card. Several manufacturers, including Adaptec (http://www.adaptec.com), D-Link Systems (http://www.dlink.com), and IOGEAR (http://www.iogear.com), produce the cards, and you can buy one from any computer retailer. A five-port adapter card typically sells for about $50; two-port adapters sell for half of that.

Once the USB port is in place, it's time to prepare your OS to handle it. The bad news is that Microsoft did not include support for USB 2.0 in the initial releases of either of its WinXP OSes (the company claimed it did not have time to adequately test the technology before the release of WinXP). The good news is that you can add support to your copy of WinXP rather easily. Microsoft designed the OS to support the addition of a USB 2.0 **driver** (software that lets a hardware component communicate with the rest of a computer system). You can use Windows Update to update the driver.

Windows Update, a feature of the Windows OSes for several years now, communicates with Microsoft to determine whether your computer needs to receive any **patches** (bits of code that fix known problems with a piece of software), drivers, or other downloadable updates. You can activate Windows Update by opening the Start menu; burrowing through the All Programs, Accessories, and System Tools submenus; and clicking the Windows Update option.

If you're connected to the Internet, the Windows Update Web site (http://windowsupdate.microsoft.com) will appear on-screen. You may be prompted to install an update for Update itself; choose Yes to proceed and restart the computer if necessary. When you revisit Windows Update, click the Scan For Updates hyperlink. Windows Update will review the contents of your PC and determine which updates you need. When it finishes, a list of update categories will appear on the left side of the Windows Update page. You'll find the USB update in the Driver Updates category.

Please note that Windows Update will not present the USB 2.0 update if your computer doesn't have an USB 2.0 port installed. It also may not present the USB 2.0 update if you have a third-party USB 2.0 driver installed (such a driver may come bundled with your USB 2.0 adapter card). Uninstall the driver (review the users manual for specific instructions), and then check back with Windows Update.

After you select all the desired updates from Windows Update, including the Microsoft USB 2.0 driver update, click the Review And Install Updates link. The selected updates, along with a description and size for each, will appear in a list. Click the Install Now button, accept the terms of the licensing agreement, and then wait while the updates are downloaded and installed. Restart the computer when you are prompted to do so. With the update installed, your USB 2.0 ports should be fully functional.

■ **Ride The Bus.** With USB 2.0 ports, you can continue to connect USB 1.1 devices because USB 2.0 is backward-compatible. The older devices will not enjoy the high transmission rates USB 2.0 provides, but they will still work. LS

by Jeff Dodd

Need For Speed

Just how fast is USB 2.0 (Universal Serial Bus 2.0)? Well, it's 40 times faster than USB 1.1 and more than 4,000 times faster than a serial port. Here's a head-to-head comparison of the data transmission speeds of five common external PC port interfaces.

Interface	Data Transmission Rate
USB 2.0	480Mbps
IEEE 1394	400Mbps
USB 1.1	12Mbps
Enhanced Parallel Port	1.5Mbps
Serial Port	115.2Kbps

The Shape Of New PCs

End users are not the only ones to benefit from the coming of USB 2.0. Computer manufacturers also like the technology because it gives them the freedom to rethink the shape of the modern PC.

The typical PC's need to accommodate various hardware components, including a motherboard, a power supply, and multiple drive bays and expansion slots, dictates its size and shape. A manufacturer has to provide room for at least three drives (a hard drive, diskette drive, and disc drive), as well as a sound card, video card, NIC (network interface card), modem, and other expansion cards. Moreover, the manufacturers usually design their products for expandability, adding a couple of extra drive bays and some spare expansion slots. The result is a suitcase-sized tower around which you must plan the layout of your office.

USB 2.0, which provides an impressive data transmission speed of 480Mbps, lets computer manufacturers shift the focus of expandability from internal to external upgrades. The beige box no longer needs to be a box. It can be a pad or a cube or an all-in-one unit that combines the monitor and computer into a single slim device. As long as it has a couple of USB 2.0 ports, it can support the addition of any number of storage drives, multimedia components, printers, scanners, and input devices. The possibilities are virtually endless.

Intel can claim a significant share of responsibility for drawing attention to USB 2.0. The chip manufacturer made headlines when it announced that it would build support for the technology into its family of Intel 845E and 845G **chipsets** (groups of microchips that control the flow of information within a PC; not to be confused with the CPU). Intel designed these chipsets to complement the superfast Pentium 4 processor. Computers based on this chipset/processor combination could be quite intriguing, as you'll see if you visit Intel's Concept PC gallery at http://www.intel.com/technology/easeofuse/conceptpc.htm. The computers shown in the gallery represent the next generation of personal computing.

Configure & Use Remote Desktop

Make PC Access More Convenient From Afar

We've all experienced that terrible stab of panic. It's the one when you've arrived home from work but forgot to finish that report your boss wanted by tomorrow morning. Luckily, you previously configured WinXP's Remote Desktop on your work computer, so now you can calmly connect to the remote computer, finish the file, and email it to your boss.

Remote access programs and VPNs (virtual private networks) have been with us for years. Perhaps you've used pcAnywhere (from Symantec) or LapLink (from LapLink Inc.) to connect to your work computer from home or on the road, or maybe your employer has configured an easy-to-use VPN. But whether you're new to remote access or an experienced user, chances are good you'll find WinXP's Remote Desktop a worthy medium for accessing that far-away computer. Remote Desktop bundles a wealth of productivity into a fast, secure package that's conducive to both work and leisure applications, and because it's part of WinXP, you don't need to pay extra for a third-party application or deal with the hassles inherent in VPN solutions.

■ **Going Remote.** Remote Desktop delivers both convenience and productivity in bucketfuls. If you're working from home, you can use Remote Desktop to access your work computer, including all of its applications, files, and network resources. And the remote concept doesn't end with that scenario; you can boost collaboration to new levels by accessing your desktop from a co-worker's computer, or from a meeting or a demonstration. If you're on the road and have access to an Internet connection, you can connect directly to your files. In fact, as long as you have the proper equipment, the possibilities for Remote Desktop are endless; and after you've configured your remote access environment, using the utility isn't much more difficult than your everyday computer experience.

Remote Desktop includes a bevy of features that make remote computing as easy as possible. You'll be able to copy and paste files back and forth between the local and remote computer. If you need to print materials on the remote end, you won't need to configure the printer and its drivers on the local printer because Remote Desktop will configure the connection for you. The utility will also handle drive configuration, so you can easily transfer files between hard drives, floppy diskette drives, and mapped network drives. And if your local computer can handle audio, you'll even hear any audio or sound event that's played on the remote computer.

You can make the remote access functionality even more simplified, if you choose, via Remote Desktop Web Connection. This pared-down version of Remote Desktop uses an ActiveX control, sample ASP (Active Server Page) files, and other files to create a Web application that permits sharing via Internet Explorer. You must deploy this utility on a Web server, so if you're not running a server or don't have administrative access to a server, you won't be able to use it. However, if you do have this access, the convenience factor is certainly a plus because the local computer that you connect from won't need the Remote Desktop Connection program installed.

Some confusion about Remote Desktop has spawned since WinXP's release, primarily because of a WinXP utility called Remote Assistance. Remote Assistance works similarly to Remote Desktop and both provide remote control of a computer. However, Remote Assistance is designed for troubleshooting a remote computer, and it integrates a secure invitation scheme that helps connect an expert with a novice. Although you can technically use Remote Desktop for remote troubleshooting, it lacks the security measures of Remote Assistance, as well as a few other features targeted directly toward troubleshooting. On the other hand, if you want to connect directly with your own computer for productivity goals, Remote Desktop is your ticket, not Remote Assistance. But if you need to help a remote user (such as a co-worker, friend, or family member), or if a remote user needs to help you, you should be using Remote Assistance.

■ **In The Beginning.** Before delving into Remote Desktop, you'll need to cover a few checkpoints. First, the remote computer (for example, your work computer) must have WinXP Professional installed. The requirements on the other end (with your home computer, for instance) are more flexible, and you can install the Remote Desktop client on any computer running Windows 9x, Me, NT, or 2000; if the computer on the other end uses WinXP Home Edition, then it's already installed. You can download the Remote Desktop client from http://www.microsoft.com/windowsxp/pro/downloads/rdclientdl.asp.

Or, you can install the Remote Desktop client by inserting the WinXP Pro installation CD-ROM into the disc drive of any local computer running the aforementioned OSes (operating systems). When the Welcome screen displays, click Perform Additional

Tasks and then select Set Up Remote Desktop Connection. WinXP Pro will walk you through the installation process from there.

The remote computer must have access to a LAN (local-area network) or the Internet, and the local computer must be able to access the remote computer through a network connection, modem, or VPN connection. Broadband connections provide the smoothest remote access performance, but they're not necessary. Remote Desktop is designed to make the process smooth even on slow connections by transmitting only the data that needs to transmit (although your performance mileage may vary, depending on the situation).

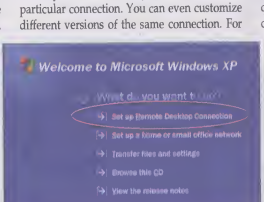
■ **Configure The Computers.** On the remote computer (using WinXP Pro), make sure you're logged in as an administrator or a user with administrative privileges, open the System control panel applet, choose the Remote tab, and select the checkbox next to Allow Users To Connect Remotely To This Computer.

Next, you'll need to make sure you have permission to connect to this computer remotely. Click the Select Remote Users button, and in the resulting dialog box, you'll see a list of users who are allowed to connect. If you're setting up Remote Desktop for the first time, the list will probably be empty; however, if you're the only user of the computer, this list should indicate that you already have access (look below the box of names for a message such as "Joe User already has access"). If you'd like to add more users to the list, click the Add button. To remove users, click the Remove button. Click OK when you finish.

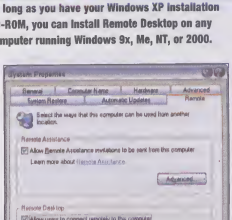
No configuration is necessary on the local computer, aside from the installation of the Remote Desktop client on a computer running Win9x, WinMe, WinNT, or Win2000 (if necessary).

■ **Get Connected.** When the computers on each end are ready to go (and you're certain the remote computer is active), you can establish a remote connection at any time. On your local computer, click Start, Programs (or All Programs), Accessories, Communications, and Remote Desktop Connection. This will open the Remote Desktop Connection window, where you'll need to enter the remote computer name in the Computer field. Click the Connect button. When the Log On To Windows dialog box appears, type your username, password, and domain (if necessary), and click OK.

You can also open a saved connection by clicking the associated file ending in the .RDP extension in the Remote Desktops folder (found in My Documents). These Remote Desktop files save all of your settings from a particular connection. You can even customize different versions of the same connection. For


Welcome to Microsoft Windows XP
What d... you want t...
Set up Remote Desktop Connection
Set up a home or small office network
Transfer files and settings
Browse this CD
View the release notes
Back

As long as you have your Windows XP installation CD-ROM, you can install Remote Desktop on any computer running Windows 9x, Me, NT, or 2000.



Thanks to its efficient integration with Windows XP, configuring Remote Desktop on your remote computer is a snap.

instance, you can save a connection file for your work computer that accepts remote sounds for use in the daytime, and save a second connection file for use at night that leaves sounds on the remote computer. You can modify these files at any time by right-clicking the file and clicking Edit.

To modify your connection settings, click Options on the Remote Desktop Connection window. On the General tab, you can specify the computer you're connecting to, as well as your username, password (which you can save), and domain. You'll also find an option to save your settings here, along with an option to open a saved connection.

The Display tab lets you choose the size of your Remote Desktop, ranging from 640 x 480 pixels to full screen. You can also choose color quality and whether you'd like to display the connection bar when in full-screen mode.

The Local Resources tab lets you modify audio and keyboard options, in addition to letting you choose whether to connect automatically to disk drives, printers, and/or serial ports on the remote computer.

The Programs tab features an option to start a particular program upon connection, while the Experience tab lets you choose your connection speed and allow (or disallow) such features as Desktop background, window contents while dragging, menu and window animation, themes, and bit map caching.

Once you establish a connection, the remote computer will be locked, preventing access from anyone except you via the remote connection. When you return to the remote computer, you'll need to press CTRL-ALT-DELETE and log in to regain access.

■ **Using Remote Desktop.** When Remote Desktop has successfully connected to the remote computer, a new window will open that looks just like the Desktop on the remote computer, complete with all the same settings, files, and folders.

Activity during a remote session is similar to activity during a regular local session. In fact, at times it's easy to forget you're working on a remote computer. All the files, folders, and programs on the remote computer are available, and you can even access local files and folders within the remote session. You can also cut and paste information from your local computer into a program used during the remote session, and vice versa.

Of course, all of this activity is based on the assumption that the policies implemented on your remote computer allow for full use of its files, folders, drives, and programs. If your employer has blocked access to any of these resources, you might be limited in what you can do. If you find that you can't seem to access certain resources, check with the person who implements the network policies to see if your access is being limited. You might find that these policies are intended to block hackers, not employees working from home, and the network administrator should be able to grant access to what you need.

■ **Remote Desktop Web Connection.** If you're running a Web server with WinXP or Win2000, you can install the Remote Desktop Web Connection for even easier remote access. Once installed, you can connect to your remote computer (the computer running your Web server) with any computer running Win9x, WinMe, WinNT 4.0, Win2000, or WinXP. You don't need to install the Remote Desktop utility on the local computer, but you do need to configure Remote Desktop Web Connection using your WinXP installation CD-ROM. The Web Connection is an extremely flexible option, as you simply need the URL (uniform resource locator) to which you're connecting and your WinXP CD-ROM.

Because Remote Desktop Web Connection is an optional component of WinXP (and Win2000), you can simply install it on your Web server using the Add Or Remove Programs control panel. Click Start, Control Panel, and Add Or Remove Programs. Then, click Add/Remove Windows Components from the left pane (this will launch the Windows Components Wizard). Next, select Internet Information Services and click Details. In the next window, select World Wide Web Service and click Details. In the following window, place a check mark beside Remote Desktop Web Connection and click OK.

Return to the Windows Components Wizard, click Next, and then open the Internet Services Manager. Browse to *COMPUTER*\WEB SITES\DEFAULT WEB SITE\TSWEB (where *COMPUTER* is the name of your local computer). Right-click the Tsweb folder, click Properties, and then click the Directory Security tab. Under Anonymous Access And Authentication Control, click Edit, and then select the Anonymous Access checkbox from the Authentication Methods dialog box. Click OK twice.

Once you've installed the utility on your remote computer (the Web server), you'll be ready to connect to it from another computer. To do so, first make sure that the local computer is connected to the Internet or a network with active Internet access. Also, the local computer needs to have WINS (Windows Internet Name Service) or another name resolution method configured and functioning (for more information about WINS and name resolution, see http://www.microsoft.com/technet/treeview/default.asp?url=/TechNet/prodtechnol/winxppro/reskit/prjj_ipa_seam.asp).

Next, open Internet Explorer (version 4.0 or later) and enter the URL that holds the Remote Desktop Connection files on your Web server. For example, if your home URL is http://www.yourserver.com, you might type **http://www.yourserver.com/tsweb** in the Address field. This will launch the Remote Desktop Connection page. Then, type the name of the remote computer to which you want to connect in the Server field. You can also specify the screen size and logon information for your connection. Finally, click Connect to connect to the remote computer.

Remote Desktop lets you modify a wealth of sight, sound, and connection options via an intuitive interface.

■ **Implement Security.** Although Remote Desktop is generally a secure process, it's still a good idea to take basic precautions before you open a remote connection. First, it's wise to add yourself to the Remote Desktop Users group on the remote computer so you won't need to log on as an administrator to access it.

Actually, running your computer in Administrator mode on a regular basis is dangerous because rogue code (such as Trojan horses) can be successfully installed and run on your system if it's currently operating with Administrator privileges. Instead, add yourself to the Users or Power Users group and log on as a User. If you need to run tasks that require Administrator privileges, you can always log back in as Administrator or as a user with administrative privileges, and then log out. Running your system as an Administrator is asking for trouble because if anyone manages to gain control of the system, this person can easily reformat your hard drive, delete any and all files, create a new Administrator account, and more.

If your user profile includes both administrator and Remote Desktop privileges, you're just asking for trouble. Instead, configure a remote profile that doesn't include administrator privileges.

When using Remote Desktop, it's important to remember that the remote computer is in your full control. Likewise, it will be in the full control of anyone who has access to your open remote connection. There might be nothing of value on your local computer, but if you need to protect your remote computer, make sure you protect the connection to it.

■ **Troubleshoot Remote Desktop.** Remote Desktop is a stable utility, but some problems tend to occur more than others. Luckily, it's easy for you to fix most of them. For example, if you're unable to copy text from the remote computer to your local computer, try reinstalling Remote Desktop Connection on the local computer and try again. If you're unable to open a specific program on the remote computer, make sure that the program's path and file name are properly identified if you configured Remote Desktop to start the program upon connection.

Remote Desktop can run slowly on low-bandwidth connections. To speed it up, set the background selection to None on the remote computer, and try not to run memory-hogging applications (such as Adobe Photoshop) from the remote computer. Another common problem happens when you minimize the Remote Desktop Connection window and the screen goes blank. This can happen when you use a password-protected screen saver on the local computer. Try disabling the screen saver when you're using the remote connection.

■ **PC Remote Control.** As evidenced, Remote Desktop is simple to configure and use. Although WinXP's remote access technology isn't flawless, it's generally stable within the WinXP environment. After all, it was designed to be a part of the OS, and as such, it isn't as likely to fall prey to major incompatibility bugs that can plague other remote access programs and VPNs. Once you configure Remote Desktop, it only takes a few mouse clicks to connect, and with a little practice, you might find uses for remote access that we didn't even cover here. LS

by Christian Perry

Cure A Corrupt Event Log

Use The Additional Assistance WinXP Pro Offers

Windows XP Professional lets network system administrators and ambitious home users access a remarkable amount of information about the background operations WinXP keeps invisible to ordinary users. The Event Log actually maintains a running record of every instance of system activity that occurs in WinXP, from attempts to access secure areas of a system, to applications loading and requesting code from the OS (operating system), to very basic OS operations. Administrators and resourceful users can monitor this ongoing log with the Event Viewer.

To see this in action, go to the Control Panel and Performance And Maintenance category. Open the Administrative Tools window and double-click the Event Viewer icon. Event Viewer divides the records into operations related to specific applications, security, and the OS itself. By highlighting any of these categories, you'll see a running record of everything WinXP Pro is doing automatically in the background or in response to your commands, along with any errors occurring in the system. This tool not only gives administrators the power to monitor machines in detail, but it also identifies where conflicts or slowdowns might occur.

■ **Step 1: Disable Event Logging.** Someday, your Event Log files may become corrupt, in which case WinXP Pro will report a log file error upon booting up. As with a corrupt Registry, the usual cause for this malady involves an improper system shutdown or startup that interrupts your computer while it is reading or writing to essential files for booting up or shutting down. Likewise, any damage to the hard drive can affect the three separate files that make up your Event Log.

To get these log files back on track, start by disabling the Event Log service. To do this, open the Administrative Tools window again and double-click Services. The Services window lets administrators activate and deactivate an enormous amount of WinXP background tasks known as "services."

In the right pane, highlight the Event Log listing and take note of the term "started" in the Status column, which means that the Event Log is one of the services running in the background. You must disable the Event Log service before you can eliminate corrupt log files. Double-click the Event Log listing, and from the General tab of the dialog box that appears onscreen, select Disabled from the Startup Type drop-down menu. Click Apply, then OK.

When you finish, the Event Log listing will probably still show its status as "started" because, unlike some other services in WinXP, you must reboot your system to deactivate the Event Log service. After you reboot, come back to the Services window and check the Event Log listing again to make sure it didn't start this time.

■ **Step 2: Out With The Bad.** Once you disable the Event Log service, it's safe to go in and delete the corrupt log files that are causing the error message. Look in the drive and root directory where your WinXP Pro installation resides. In most cases, this will be X:\WINDOWS (where X is the letter assigned to the hard drive). Look for the SYSTEM32\CONFIG subdirectory and three files: AppEvent.Evt, SecEvent.Evt, and SysEvent.Evt (where WinXP logs each category of events for the Event Viewer). Delete all three files and reboot.

On the other hand, because Event Viewer lets administrators change the location and names of these log files, you may have trouble finding them. Wherever they are and whatever names they currently have, these files should have the .EVT extension, so it will be easy to hunt them down. Try performing a simple search by clicking Search from the Start menu and choosing All Files And Folders. In the top field, type *.evt. In the Look In drop-down menu below, choose the drive on which WinXP Pro resides. Click the Search button.

Another way to identify where Event Log files are is to open the Event Viewer and right-click Application, Security, or System in the left pane and choose Properties. The Log Name field will have the full path and file name of the EVT file WinXP is using for that category. Remember, there are three separate files, one for each category. So, if you want to preserve as much logged content as you can, try deleting only one EVT file at a time, rebooting after each deletion to see if you can eliminate the error message without deleting all three files.

■ **Step 3: In With The Good.** Don't be too surprised if turning off the Event Log service has an odd effect on the rebooting process. On our test system, it prolonged the shutdown sequence, and then it alternately quickened and later delayed the bootup process after we deleted the EVT files. After deleting EVT files, be patient and let your system sit at its Welcome screen for a long time before you decide that your PC deserves a hard reboot.

Once the system reboots, you'll need to activate the Event Log service again, which will direct WinXP to create new, clean Event Log files. To do this, open the Services window (as we explained previously) and double-click the Event Log listing. From the General tab of the dialog box that displays, select Automatic from the Startup Type drop-down menu. Click Apply, then OK.

When you finish, you should see a Start This Service button in the upper-left area of the Services window. Click this button to restart the Event Log service. And even though the Status column will indicate that the Event Log service restarted, you may still need to reboot your system to start seeing event records appear in the log. LS

by Steve Smith

Behind Closed Doors

Top 15 Advanced Security Tips

The software you buy in the future may come with a quality rating if a newly formed consortium is successful in meeting its goals. The Sustainable Computing Consortium (http://www.sustainablecomputing.org), founded in part by Carnegie Mellon University, Oracle, NASA, and Microsoft, aims to quantify and reduce the risks software flaws pose to secure and reliable computing.

Perhaps the consortium is one way to objectively address security issues related to Microsoft products. Microsoft security alerts seem to be a regular occurrence, but it's hard to know whether the issues are a result of poorly constructed software or are simply more publicized due to Microsoft's prevalence in the marketplace.

Regardless of regular security alerts and future software ratings, there is much you can do yourself to harden security—especially if you use Windows XP. Microsoft's latest OS (operating system) offers new and improved security features to help you discover, correct, and prevent security problems. The following tips identify 15 actions you can take now to improve your system's security.

WinXP Home & Professional

Whether you use a standalone PC, a small network workgroup, or a large network domain, both WinXP Home and Professional offer numerous advanced security features. Although the information in this article is appropriate for most configurations, check with your system administrator before implementing a tip. In addition, you need to log in as a user with Administrator capabilities to complete most of the procedures outlined here.

1 Update all PCs frequently. An important security principle is keeping your critical software up to date. For Microsoft products, you should routinely use Windows Update. This feature scans your PC for missing updates and lets you select, download, and install them.

Windows Update is convenient for standalone PCs connected to the Internet, but it does not save the updates to a file that you can install on a different computer. To download an update to a file, try the Windows Update Catalog.

To get to Windows Update Catalog, go to the Windows Update Web site (http://windowsupdate.microsoft.com) and click Personalize Windows Update. Check the Display The Link To The Windows Update Catalog Under See Also box and click Save Settings.

Regular updating is important, but sometimes it's not enough. Sign up for the Microsoft Security Notification Service and find out right away about security issues and product updates. You can find out more at http://www.microsoft.com/technet/security/bulletin/notify.asp.

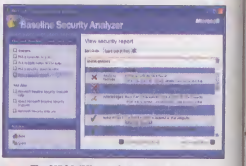
2 Convert FAT to NTFS. To use advanced security features, such as access control and folder encryption, your hard drive must be formatted as NTFS (NT File System). Some WinXP computers may instead use the FAT (file allocation table) system, a requirement of previous Windows OSes, such as Windows 95 and Me.

To determine which file system your PC uses, right-click the hard drive icon in My Computer and click Properties. The file system information displays on the General tab. If it shows FAT, FAT16, or FAT32, refer to the Microsoft Knowledge Base article Q314097 (go to http://support.microsoft.com and type Q314097 in the Search field) for details about using WinXP's Convert.exe utility, which converts FAT to NTFS.

3 Test your PC's strength. The MBSA (Microsoft Baseline Security Analyzer) works with WinXP to discover and correct security problems. This tool, which you can download from http://www.microsoft.com/technet/security/tools/Tools/mbsahome.asp, scans your PC to find security problems, such as missing hot fixes and weak passwords. When the scan is complete, a report displays with scores, result details, and instructions for correcting vulnerabilities.

4 Harden Internet Explorer. IE6, which is bundled with WinXP, offers four Security Zones: Internet, Local Intranet, Trusted Sites, and Restricted Sites. Each zone has its own security settings based on assumed levels of trust (High, Medium, and Low). To strengthen security, you can assign a lower level of trust to a zone or customize settings.

To customize Security Zone settings, click Internet Options from the Tools menu and then click the Security tab. Select the zone you want to affect and then click the Custom Level button. For zones where you want tighter security, change most of the settings to Disable or Prompt, especially those dealing with ActiveX, Java, and Scripting. This prevents Web sites from using malicious scripts to compromise your system or launch a virus.



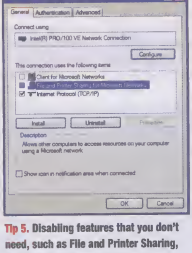
Tip 3. The MBSA (Microsoft Baseline Security Analyzer) scans your PC's unique configuration to discover security vulnerabilities. It displays this report to alert you to critical issues (red X), noncritical issues (yellow X), and checks that passed (green check mark).

Because you can apply less stringent rules in the Trusted Sites zone, you can afford to tighten your settings in the Internet and Restricted Sites zones. What's more, IE6 shares settings for the Internet and Restricted Sites zones with Outlook Express and Outlook, making strong security in these zones even more important.

In addition to Security Zones, you can customize settings on the Privacy and Advanced tabs of the Internet Options Dialog box. The Privacy tab deals with cookie management, and the Advanced tab contains settings for a variety of options, including security. Consider checking all of the options under the Security heading in the Advanced tab.

5 Disable extraneous features. WinXP offers features that you may never use, and some of these features are potential backdoors into your system. For example, if your PC is a standalone, you don't need File and Printer Sharing on your Internet connection. To disable File and Printer Sharing, click Network And Internet Connections in the Control Panel and select Network Connections. Right-click your Internet connection, and click Properties. If this is a dial-up connection, click the Networking tab; otherwise, click the General tab. Make sure the File And Printer Sharing For Microsoft Networks box is unchecked.

Until you need it, you can also disable Remote Assistance. This feature lets an expert user troubleshoot problems by remotely accessing your computer. To disable it, click Performance And Maintenance in the Control Panel and then click System. In the System Properties Dialog box, click the Remote tab and then click the Advanced button. Finally, uncheck the Allow This Computer To Be Controlled Remotely box.



Tip 5. Disabling features that you don't need, such as File and Printer Sharing, is one way to prevent unauthorized access to your computer.

6 Use ICF advanced settings. Unless you have another type of firewall protection in place, you should already be using ICF (Internet Connection Firewall) on all computers that connect directly to the Internet. ICF blocks unsolicited incoming communications, such as port scans, that crackers use to access your computer.

ICF offers a number of advanced settings that are disabled by default. To access them, open Control Panel, click Network And Internet Connections, click Network Connections, right-click your Internet connection, click Properties, and then click the Advanced tab. Next, click the Settings button to display Advanced Settings. This dialog box contains tabs for Services, Security Logging, and ICMP (Internet Control Message Protocol).

The Services tab lets you permit specific services to run on your computer without interference from ICF. To use your computer as an FTP server, for example, you need to give ICF permission to allow incoming FTP traffic. Simply check the box associated with the service you want to enable. You can also click the Add button to define a custom service.

You can also configure WinXP to log firewall activity to a text file. To log blocked activity, click the Security Logging tab and check the box Log Dropped Packets. By default, WinXP logs activity to the file Pfirewall.log in the Windows directory. You can use the Log Options area to define a different file name, location, and size. After you establish logging, periodically open the log file in Notepad to examine firewall activity. For details about interpreting the contents of the log, read the overview titled Internet Connection Firewall Security Logging in the Help And Support Center.

The final tab in the ICF Advanced Settings dialog box is ICMP. These settings correspond to a variety of diagnostic and status commands used for determining network functionality. To enable an option, simply check the associated box. To learn more about an option, refer to the explanation in the Description area on the ICMP tab.

7 Clear the paging file. At times, WinXP must swap information between your PC's hard drive and active memory. The file it uses to swap data is called a paging file, and it can contain sensitive data, such as passwords and credit card numbers. A knowledgeable person who has access to your computer could open the paging file and read its contents. However, you can edit the Registry so the paging file clears each time you shut down your computer.

The following instructions direct you to edit the Windows Registry. Incorrectly modifying the Windows Registry can have adverse effects on your system, up to and including a complete inability to boot. Always back up the Registry before attempting any modifications to it. See "Protect Yourself" on page 32.

To access the Windows Registry, first start the Registry Editor by clicking Start, selecting Run, and typing **regedit**. Next, navigate to HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Session Manager\Memory Management. With Memory Management highlighted in the left pane, double-click ClearPageFileAtShutdown in the right pane. Change the Value Data to 1, click OK, exit the Registry Editor, and then restart your computer.

8 Filter email attachments. Viruses are one of the most prevalent security threats. In addition to antivirus software, you should use attachment blocking with your email software. This feature prevents you from receiving potentially harmful files, such as EXE (Executable) or VB (Visual Basic Script) files.

If you use Outlook Express, which is bundled with WinXP, you should enable attachment blocking. Click Options from the Tools menu, select the Security tab, and then click the checkbox Do Not Allow Attachments To Be Saved Or Opened That Could Potentially Be A Virus.

9 Create passwords & reset disks. If you don't establish a password for your WinXP User Account, anyone who sits down at your computer can log in to your account. To protect yourself, create a strong password using the User Account interface in Control Panel.

A strong password cannot be obvious. A mixture of at least seven upper- and lowercase letters, numbers, and symbols is stronger than the name of a child or pet. If you find it hard to dream up a strong password, try the Net.exe command line utility, which offers a random password generator. To use the generator, open the command prompt by clicking

Tip 9. Creating strong passwords goes a long way toward preventing someone from accessing your account. To generate a random password, you can use the Net.exe command line tool.

Start, All Programs, Accessories, and Command Prompt. Type **net user** *username* **/random** (substitute the account name for *username*) and press ENTER. The password that displays takes effect immediately for the account name you specified.

After establishing a strong password, you should use the Forgotten Password Wizard to create a password reset disk. For details about using the Forgotten Password Wizard, open Help And Support Center and search for **password reset disk**. If you do not have a reset disk, an administrator can create a new password for you. Unfortunately, you will lose all of your passwords, including those for Web sites, network logins, and your .NET Passport. This prevents an administrator from resetting your login password and impersonating you.

10 Limit the administrator. WinXP offers different types of user accounts with varying levels of authority. The most powerful is an administrator account. Administrators have free reign over a computer, including the ability to access all files and folders, change system configuration settings, and install software.

As you might guess, if you are logged in as an Administrator and your computer launches a virus, the potential for damage is far greater than for more limited account types. Additionally, using an Administrator account for everyday tasks increases the chance for unintentional damage to your system. For these reasons, it is best to have one account designated as an Administrator account and to use it only when necessary.

To examine the account type assigned to each user, click the Control Panel and then click User Accounts. The main User Account screen lists the users and corresponding account types. Follow the links under Pick A Task to change or create an account.

11 Keep it private. If your computer uses NTFS, you can hide certain folders from other users. Both versions of WinXP let you hide any or all of the folders under your User Profile, including the My Documents folder. However, WinXP Pro also offers an additional, more sophisticated method of access control. (See Tip 15.)

Making a folder private is simple. Open My Computer and then navigate to the Documents And Settings folder on your PC's hard drive. To protect all of the folders that are under your user profile, right-click your username and click Properties. To make a specific folder under your user profile private, click your username, navigate to the folder you want to keep private, right-click, and then click Properties. In the Properties dialog box, click the Sharing tab and check the box Make This Folder Private So That Only I Have Access To It.

If you are not using a password, making folders private is pointless. Anyone can click your name on the Welcome screen to log in and see your files. Consequently, WinXP displays a warning when you make a folder private on an account without a password.

WinXP Professional

WinXP Pro is designed primarily for business use. Accordingly, it offers additional security features not found in the Home version, especially for notebook computers and workgroups that need beefed-up security.

Microsoft Is Not The Only One

The Code Red and Nimda worms attack Microsoft IIs servers. The Anna Kournikova and ILOVEYOU viruses exploit Microsoft Outlook. With all the publicity these security issues attracted, you may think that only Microsoft products are at risk. However, security advisories put out by the CERT Coordination Center (http://www.cert.org) and Symantec (http://security response.symantec.com) in the past few years reveal that crackers are exploiting a wide variety of software, including Linux and other Unix-based OSes (operating systems).

According to Aaron Grothe, a security consultant and Unix system administrator, these classic attacks on Unix-based systems come from well-known utilities, such as Telnet, sendmail, and ftpd.

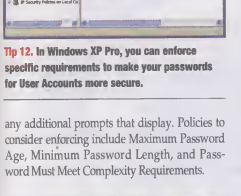
"All of these have had attacks against them," said Grothe. "Most of the attacks have to do with overflowing a buffer, for example, sending a couple hundred lines of text to the sendmail process to overflow a buffer and execute arbitrary code."

In fact, crackers frequently use buffer overflows to exploit a wide variety of software products. In the first part of 2002, Symantec and CERT reported buffer overflow problems related to the CDE graphical user interfaces for Unix OSes, AOL's ICQ instant messaging software, Black Ice security products, Microsoft SQL Server, Sun Solaris (a Unix-based OS), MSN Chat Control, Internet Explorer, Oracle Application Server, and Macromedia JRun Application Server.

There is a notable difference between Microsoft and Unix-based OSes, noted Grothe. "There are alternatives to all of the classic Unix utilities. For example, Redhat Linux 7.3 ships with Telnet turned off and uses OpenSSH instead for remote access. Sendmail has several alternatives as well, such as smail, postfix and qmail." In comparison, Grothe pointed out, "every Microsoft Windows box is going to have Outlook or Outlook Express, Internet Explorer, and a certain guaranteed set of applications and libraries."

Obviously, the more crackers know about a system, the easier it is for them to find vulnerabilities, and with the large number of systems running Microsoft products, related attacks are bound to attract attention. However, it's also evident that security flaws are present in all types of software and that crackers will always find ways to exploit them. ■

12 Establish password policies. With WinXP Pro, you can use the Local Security Settings console to require more secure passwords for all user accounts on your PC. To access the Local Security Settings console, click Control Panel, Performance And Maintenance, Administrative Tools, and Local Security Policy. In the left pane, expand Account Policies and click Password Policy. A list of policies and settings displays in the right pane. Click the policies you want to enforce and complete

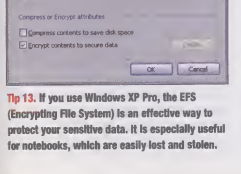


Tip 12. In Windows XP Pro, you can enforce specific requirements to make your passwords for User Accounts more secure.

any additional prompts that display. Policies to consider enforcing include Maximum Password Age, Minimum Password Length, and Password Must Meet Complexity Requirements.

13 Use the Encrypting File System. The EFS (Encrypting File System) is a very powerful tool, especially for notebook computers. This feature lets you encrypt specific folders or files on your computer, rendering them unreadable to others. EFS requires that you use NTFS.

When you use EFS, even savvy crackers can't recover and read the files if your computer is lost or stolen. What's more, the



Tip 13. If you use Windows XP Pro, the EFS (Encrypting File System) is an effective way to protect your sensitive data. It is especially useful for notebooks, which are easily lost and stolen.

encryption/decryption process is automatic. When you open an encrypted file, it displays normally. However, when others attempt to open the file, they are locked out.

Encrypting an entire folder is recommended over encrypting individual files. That way, you know that any new or temporary files in that folder are also encrypted. Two items that are good candidates for encryption are the My Documents and Temp folders.

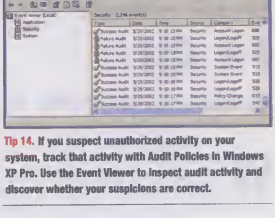
To encrypt a folder, open My Computer, navigate to the folder you want to encrypt, right-click it, and then click Properties. On the General tab, click the Advanced button in the Attributes area. In the Advanced Attributes dialog box, click Encrypt Contents To Secure Data and click OK. If the folder contains files or subfolders, you are prompted to choose either Apply Changes To The Folder Only or Apply Changes To This Folder, Subfolders And Files. In most cases, you should choose the latter option. If you choose the former option, WinXP doesn't encrypt files currently in the folder.

14 Audit security. In addition to setting password policies, WinXP Pro's Local Security Settings console includes options for auditing security events. This feature lets you track suspicious activity on your system. For example, you can choose to log successful and failed account logins, which may point to someone misusing accounts or attempting to break into your system.

To access the Local Security Settings console, click Control Panel, Performance And Maintenance, Administrative Tools, and Local Security Policy. In the left pane of the Local Security Settings console, expand Local Policies. Click Audit Policies to display a list of options in the right pane, which you can click to select. Be sure to limit audits to only the events you need. Too much auditing degrades system performance.

To view the log of audit events, open the Event Viewer, which is also in Control Panel's Administrative Tools. Click Security in the left pane to display the list of events in the right pane. Click an event to display the Event Properties dialog box, which provides details and a link to the Help And Support Center for more information.

15 Give permission. Assuming that your computer uses NTFS, you can



Tip 14. If you suspect unauthorized activity on your system, track that activity with Audit Policies in Windows XP Pro. Use the Event Viewer to inspect audit activity and discover whether your suspicions are correct.

exercise advanced access control for your folders. Rather than simply making a folder accessible or inaccessible, for example, you can grant another user permission to read a file but not modify it.

To use this feature, you must first disable Simple File Sharing. To do this, right-click the Start button, open Explore, click the Tools menu, and click Folder Options. Click the View tab and clear the Use Simple File Sharing (Recommended) checkbox. You can then set permissions by right-clicking the folder, clicking Properties, and clicking the Security tab.

The top portion of the Security tab lists the users and groups that have existing permissions for the folder. To add to a user or group name, click the Add button and follow the on-screen instructions. The bottom portion of the Security tab displays the permissions for the highlighted user or group. Permissions include Full Control, Modify, Read & Execute, List Folder Contents, Read, and Write. To set a permission, click the corresponding Allow or Deny box. As a general rule, you should stick to controlling permissions with the Allow designation. An exception is to deny Full Control when you want to completely block access.

■ **Secure Yourself.** Being aware of and implementing security features in WinXP will help you discover, correct, and prevent security issues. Hopefully, the Sustainable Computing Consortium's efforts will result in a future of extremely reliable and secure software products. In the meantime, rely on the best resources you have now: your own awareness and actions. LS

by Carmen Carmack

One Size Doesn't Fit All

31 Internet Explorer 6 Tips

Whether you agree with Microsoft's legal case that its Internet Explorer is an indivisible part of Windows, no one can deny that Internet Explorer 6 is a robust and incredibly useful Web browser.

Does IE6 and its integrated Media Bar seek to tighten the competitive screws on RealPlayer even further? Sure. But IE6 actually does a better job of adhering to industry standard Web protocols than previous IE versions, and even when Microsoft is being "aggressive" against its browser rivals, the end result is still an increasingly good application that any Windows user can enjoy.

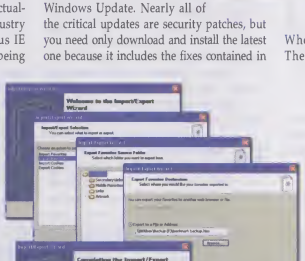
The question is whether you're getting the most enjoyment possible from IE6. Simple on the surface, the browser actually contains a substantial array of configuration options under its hood, many of which you can use to tweak IE6 to fit your preferences. We've collected a legion of tips for you to tailor IE6 to near perfection.

1 Be current. Even if you have a version of Windows prior to XP, you can still download and run IE6. Surf to http://www.microsoft.com/windows/ie/downloads, click the link for Microsoft Internet Explorer 6, and click the Go button next to the pull-down list for your preferred language (English by default). You will be prompted to download a 497KB setup file, which then manages the download of IE6 itself, a roughly 17MB file.

2 Then stay current. Getting IE6 up and running is only the beginning. Like most highly complex programs, IE has its fair share of bugs, security flaws, and general room for improvement. You can minimize risk and get your browser in top working order by keeping current on Microsoft's latest browser patches.

Your first option is either to surf to the download page and click either the Critical Updates or Recommended Updates links or access the same information by clicking the Tools menu in IE and Windows Update. Nearly all of the critical updates are security patches, but you need only download and install the latest one because it includes the fixes contained in its predecessors. As of this writing, the recommended updates still applied only to Internet Explorer 5.x. Bookmark this page so you can easily return to it.

The other way to access these downloads is to click Start, Control Panel, Performance And Maintenance, and System. In the Automatic Updates tab, you'll find three options under Notification Settings. We recommend checking the first option: Download The Updates Automatically And Notify Me When They Are Ready To Be Installed. The object is to make sure that you are always current, and the more automated that process is, the safer and happier you'll be.



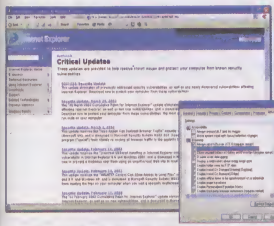
Don't take chances with your hard-won Favorites list. Use IE6's export wizard to keep your list in a place safe from system crashes.

Meet The Menu Bar

We could fill a small book going into every nook and cranny of the many features and options in IE6. The following is a collection of IE6's most useful tweaks that are all accessed from the File, View, Favorites, and Tools menus.

3 More new to you. Nine times out of 10, the only reason we click New from the File menu is to select the Window listing and create a carbon copy of the active window. (Pressing CTRL-N is a shortcut for this.) However, the listings below Window are handy shortcuts to other common Microsoft communications apps.

There are four listings: Message, Post, Contact, and Internet Call. If you click the Tools menu, Internet Options, and the Programs tab, you'll see the applications with which these names are linked. If you have Outlook installed, odds are that all of them link to various parts of that program, save for Internet Call, which generally links to NetMeeting or Windows Messenger. (If you don't have Outlook, these links will associate with Outlook Express, which has now officially become part of IE6.) Having two-click



Are you up to date? You can easily fix many of Internet Explorer 6's bugs by regularly downloading updates for the browser and recommended files from Microsoft's IE6 Web site.

Love it or hate it, image resizing is one of IE6's most famous features. If the feature is not right for you, however, disabling resizing is only a menu option away.

access to these features sure beats having to fish for them the long way.

4 Kill the cut-off. One of our biggest pet peeves with IE is its propensity for cutting off the right edge of text in pages that use frames. Often, if the printed area only extended out another quarter- to half-inch, it would be enough to reveal the amputated characters. Fortunately, you can reclaim this little extra by adjusting the page margins. Click File, select Page Setup, and adjust the margin settings near the bottom of the dialog box. In our case, we usually change the right margin default from 0.75 to 0.25. Unfortunately, this adjustment has to be done for every print job.

5 Click Preview, save a tree. Print Preview isn't a new feature in IE6, but it has been greatly improved. If you're as tired as we are of wasting ink, toner, and paper printing pages of links and copyright notices that populate the end of many Web pages, use the Print Preview function to see where the text and graphics you want to print stops and the garbage starts.

Perhaps pages 1 to 3 are all you want and 4 and 5 would only waste consumables. If you zoom out far enough, you can see multiple pages on the screen at once, which makes it easy to see which pages are desirable and which are dispensable. If you highlight the zoom pull-down menu, using your mouse's scroll wheel will make zooming in and out much easier.

From the preview, just click the Print button in the top-left corner and specify which page range you want to output. Also note that just to the right of the Print button is another button for the Page Setup dialog box. The preview will show you just how much of your margins are being chopped off.

6 Back up those Favorites. You back up your work files and, if you're smart, your Outlook Personal Files folders, too. Over the course of several months, most IE users tend to amass a fairly impressive collection of Favorites organized in tidy folders for quick and easy reference. If you lost these, it wouldn't be the end of the world, but it sure would take a while to re-create that whole list just the way you like it. So take 30 seconds and back up your Favorites.

Under File, click Import And Export. This starts the Import/Export wizard. Click Next and click Export Favorites. If you want to back up the entire list, just leave Favorites highlighted and click Next. On the next screen, you'll see that IE6 defaults to storing your backup file in the My Documents area of your C: drive.

As with all backup sessions, we strongly recommend not backing up to the same volume on which your active data is normally stored. This means that because your Favorites are probably stored on C: as part of your default Windows and/or IE6 installation, it's dangerous to keep your backup on the same drive. If disaster strikes that volume, you'll lose both the primary data location as well as the backup.

At the very least, back up to a CD-R (CD-recordable) or Zip disk. Use the Browse button to pick your backup location, click Next, and click Finish.

7 Unlock and select your toolbars. One of the first things you may notice about the IE6 interface is that you lose a fair bit of screen real estate to toolbars. By default, there are three bars along the top of the screen: the menu bar (which is always on-screen), the Standard Buttons toolbar, and the Address Bar (in addition to the Status Bar along the bottom of the interface. Click View on the File menu, and the first two options you'll see are Toolbars and Status Bar, which has a check next to it by default. If you click Status Bar, the check will disappear along with the bar along the bottom of your screen.

Depending on how you use IE6, it may be possible for you to get along without any toolbars at all. After all, the Back, Forward, and Print functions are all available by right-clicking the browser window, and you don't need the Address Bar if your surfing is limited to a handful of Favorites sites. You may want to use one toolbar or the other, or you may have additional toolbars available via third-party applications. (Norton AntiVirus is one common example.) All of these can be enabled or disabled by clicking the appropriate toolbar name under Toolbars in the View menu.

8 Bend toolbars to your will. The toolbars in IE6 come locked by default, meaning they are fixed in place in the interface. However, you can unlock them by clicking Toolbars in the View menu and then clicking the option Lock The Toolbars, which is presently checked. This will unlock the toolbars, and you'll see handles appear on the left of each toolbar. By dragging these handles, you can combine multiple toolbars on one bar line and change the width of each bar. If you notice that icons start to disappear from the right side of a toolbar, simply click the double right-facing arrows at the toolbar's right edge to reveal the missing entries.

9 Use the Links toolbar. If you find yourself frequently visiting a select group of Favorites, you can fashion a toolbar of sorts offering quick links to these sites.

When you really want to get the most viewing space possible for your Web pages, there is an easier alternative to disabling all of the toolbars.

One of the default folders contained in the Favorites menu is Links. Using the Add To Favorites dialog box, you can add pages to the Links folder. Now, when you click View, Toolbars, and select the entry for Links, a new toolbar will appear containing icons for the item entries in your Links folder.

10 Use Explorer Bar. Some people never discover the utility of the Explorer Bar, located under the View menu. IE6 comes with several built-in Explorer Bars, and most of them are actually useful. These are specialized tools designed to provide easier access to some of IE6's features, as well as help harness the browser's power for use with outside applications.

For example, click Search in Explorer Bar to bring up the Search Companion. From here you can not only search for files on your system (similar to clicking Start and Search) but also submit a Web search query, first to MSN and then other engines. Applications such as Microsoft Money and Encarta plug in their own Explorer Bars, and there are several others ready to use. These bars aren't revolutionary conveniences, but they can save you a lot of extra clicking over the long haul.

11 Go easy on your eyes. Whether you have poor vision to begin with or you've simply spent too long in front of the monitor, you may breathe some relief if your browser's display text is just a bit larger. Under the View menu, click Text Size, and you'll see five size options listed with Medium being the default. Going with a smaller font is harder on the eyes, but it's also a great way to conserve paper when printing long Web pages.

12 You have more screen. Use it! When you really want to get the most viewing space possible for your Web pages, there is an easier alternative to disabling all of the toolbars. Under View, click Full Screen or just press F11. This removes all bars from the screen, save for the Standard Buttons toolbar. And if you want a cool way to shove this out of the way, right-click it and click Auto Hide. Now the toolbar will only appear when you run your cursor against the top of the screen. To return all of your bars to the way they were before, either press F11 or click the restore icon (the one just to the left of the X) in the top right of the screen.

13 Save it offline. One of the handiest features in IE for dial-up users is the ability to save multiple Web pages, and even entire sites, to the hard drive for offline viewing and have those pages updated automatically. Start by being on the page you want to store. If you want to store an entire site, be on the page with the most links to other pages in the site. That is, if you visualize a site like a tree, where the pages are leaves and the branches are links between other pages and folders, you want to be as close to the trunk as possible while still being linked somehow to the pages you're trying to save.

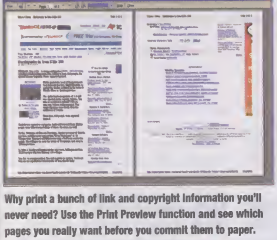
Click the Favorites menu, click Add To Favorites, and check the Make Available Offline link. Now click the Customize button. The first time you do this, IE6 will prompt you with an introduction screen to the Offline Favorite Wizard. Just check the box for In The Future, Do Not Show This Introduction Screen and click Next.

Now the wizard will ask if you only want to store this page or other pages linked to it, as well. If the latter, change the default No setting to Yes and select how many links deep you want to save. For example, say you're on Page A, which has two links to Pages B1 and C1. Page B1 links to B2a and B2b while Page C1 links to Pages C2a and C2b. If you opt to save two links deep, all of the above pages would be saved. If you only saved one link deep, then only A, B1, and C1 would be saved. That may be a bit confusing to describe, but the essence of it is that you're telling IE6 how many links to follow when it goes hunting for material to store. Keep in mind that depending on how much data is on each page, saving four or five links deep may rack up a huge Favorites file. Click Next.

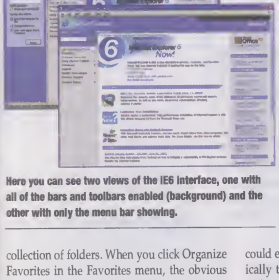
The Media Bar is one of IE6's biggest innovations and also one of the most self-serving on Microsoft's part. The bar is a huge convenience for users who enjoy tuning into online radio . . . so long as it happens to be in Windows Media format.

Now you can select how you want to synchronize the saved Favorites with the Web. This means that IE6 can compare the page version saved on your hard drive with the version currently online, and if there are any changes to the online version, your locally cached files will be updated and synchronized. The default selection here is to only synchronize when you instruct IE6 to do so. (This is done from Synchonize in the Tools menu.) However, if you would like your favorites to synchronize periodically and automatically (a very good idea depending on the content), select the I Would Like To Create A New Schedule option and complete the following date and time fields. The final dialog box asks you to fill in any necessary page login information. When you're done, click Finish.

14 Dragging beats moving. You'll inevitably want to organize your mounting mass of Favorites into a clean



Why print a bunch of link and copyright information you'll never need? Use the Print Preview function and see which pages you really want before you commit them to paper.



Here you can see two views of the IE6 interface, one with all of the bars and toolbars enabled (background) and the other with only the menu bar showing.

collection of folders. When you click Organize Favorites in the Favorites menu, the obvious way to move page entries into a folder is to highlight the Favorite and click the Move To Folder button.

However, a much simpler method is merely to click the Favorite and drag it over the target folder. Without letting go yet, you'll see the folder become highlighted. When this happens, release the button, and your Favorite will be moved into the folder.

15 Fetch the mail and news. Many users are accustomed to switching out of IE and into Outlook or Outlook Express in order to access email and newsgroup content. With Outlook Express as part of IE6, though, you can view all of this under one virtual roof.

Go to the Tools menu and click Mail And News. Of the four mail options, we generally find Send Page to be the most useful for quickly sending a copy of the page you're viewing to friends and family or even to yourself for storing in your email folders. To access all of the newsgroups your ISP (Internet service provider) provides, click Read News.

16 Create a mobile favorite. If you're the proud owner of a Pocket PC and want to take some of your favorite Web pages with you on the road, don't miss this feature. Click Create Mobile Favorite, which is a plug-in item that appears when you install Microsoft ActiveSync.

A dialog box will prompt you to change the default page name if you like and schedule regular synchronization updates. If you use a portal page for your browser's home page, making this into a Mobile Favorite is a great way to make sure you always have local movie times, weather forecasts, and other usual personal portal fare always in hand and updated each morning or afternoon.

Internet Options

Internet Options, found in the Tools menu, is so replete with features ripe for tweaking that we decided it deserves its own area. You could easily spend half of a day going methodically through these tabs in Internet Options looking for ways to improve IE6, but what follows are our choice picks for enhancing your online experience.

17 Make the home page yours. When you first start using IE6, you'll notice that the browser always starts at an MSN page. Unless you're a freakishly ardent fan of Microsoft, we bet there are other pages on the Web with which you'd rather be greeted. Surf to the page you want to be your home page, perhaps a customized My Yahoo! page or similar portal site. Click Tools, Internet Options, the General tab, and the Use Current button. At the bottom of the dialog box, click Apply, then OK. Now IE6 will always start at that page.

18 Feel the need to clean? Cookies are small text files that Web sites place on your hard drive, ostensibly to help anonymously identify your machine to make navigation and ecommerce more convenient. (Amazon.com's ability to "remember" who you are and customize content to your preferences is the quintessential example of responsible cookie use.)

Unfortunately, some sites are less scrupulous in how they implement cookies, meaning that some may potentially compromise your privacy. At the same time, temporary Internet files are Web page elements that IE saves to your system so that the next time you visit that page you can pull content more quickly from your hard drive instead of downloading the material all over again across the Web.

With both cookies and temporary Internet files, some of these items may be corrupt, which can cause IE to perform erratically or even crash. Thus if you start observing your browser behaving badly, it may be a good idea to purge the files found in both areas. In the General tab, use the Delete Cookies and Delete Files buttons to do this. Note that the Delete Files dialog box has an option for deleting offline content, namely the Favorites you have cached to your hard drive. Try leaving this box unchecked at first and only try again with the box checked if you still observe IE errors.

19 Change your cache size. As just explained, the browser cache (temporary files) is designed to store previously visited Web page elements on your hard drive so that when you return to that page it can load more quickly. The tricky question is just how big your cache needs to be.

There is no standard answer because the setting should reflect a balance between the hard drive's size weighed against the user's connection speed and general surfing habits. On one of our office systems featuring a 40GB hard drive, IE6's cache size is set to 1,192MB (1.1GB). This is a default value IE fills in. In reality, we could get away with a much smaller amount, such as 100MB or 200MB, because we use a high-speed Internet connection.

The relatively small size of the graphics contained in the Web pages we visit don't result in a substantial wait time during page loads. Moreover, we tend to visit a small handful of sites repeatedly throughout the day, so roughly 150MB of cache space is still far more than we need for our narrow usage. If we were

Another of our IE pet peeves is the default enabling of Reuse Windows For Launching Shortcuts in the Advanced tab.

connecting via a dial-up modem and tended to view a much broader selection of sites, a larger cache size would make more sense.

To change your browser cache size, click the Settings button under Temporary Internet Files in the General tab. In the Settings dialog box, look for the slider in the Temporary Internet Files Folder section. Either move the slider to the setting you wish, use the up and down arrows next to the cache size, or highlight the size and type the value you wish.

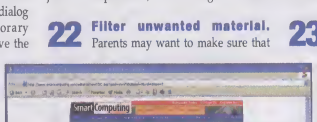
20 Beef up security. The Web may be getting more useful, but it's probably not getting any friendlier. We don't advocate anyone turning down the default Medium security setting in the Security tab. If there are sites that you trust implicitly, feel free to click the Trusted Sites icon, click the Sites button, and add sites that you don't question to your trusted list. Medium really is the best compromise setting for security combined with general site compatibility. If you value security more, however, feel free to move the slider up to High.

21 Make a safer medium. With the Internet zone and Medium security selected in the Security tab, click the Custom Level button. There are two areas here which you should definitely fine-tune. The first is Download Unsigned ActiveX Controls. Although rare, it is possible to program malicious ActiveX controls that run on Web pages and give crackers the ability to get inside your system. The risk of this is minimal with signed ActiveX controls, but you should be cautious of the unsigned variety. For best security, set this area to Disable, or at least set it to Prompt so that you can approve or deny the activity based on what site you are visiting.

The other area to change, Allow Paste Operations Via Script, is located farther down the list. If enabled, this feature lets Web sites view the contents of your Windows clipboard, meaning data you've recently cut or copied. Again, set this to Disable or at least to Prompt.

Related to security, we recommend leaving the Privacy settings on Medium or, if you're just a touch paranoid, Medium High.

22 Filter unwanted material. Parents may want to make sure that children don't see undesirable content, including sex and violence, on home computers. IE6 lets you customize such screening thanks to the Content Advisor in the Content tab, which uses a rating system the RSAC (Recreational Software Advisory Council) established.



Dial-up users take note: Saving a Favorite for offline viewing is a simple and convenient way to keep Web pages, and even entire Web sites, stored on your hard drive for quick, easy access. Most importantly, this won't tie up your phone line.

Click the Enable button if you want to turn on filtering. There are four content types—language, nudity, sex, and violence, and you can click each one and use the slider bar to indicate how much of a given type of material you're willing to permit. For example, Level 0 in language indicates that only inoffensive slang is permissible while the maximum setting, Level 4, permits everything up to explicit or crude language. Go through each of these categories and set your desired content level. When done, click Apply.

If you know of exception sites that you want permitted that might normally be blocked according to your filter settings, click the Approved Sites tab and add the site to the list. To set up a password to protect and override your content settings, use the Supervisor Password area in the Content Advisor's General tab.

23 Keep it visible. A lot of options are under the Advanced tab, but in nearly all cases, the defaults are best left alone. An option you should be aware of, though, is Enable Personalized Favorites Menu. Unless you have a sprawling, unorganized Favorites list, we strongly recommend making sure this feature is unchecked. As in many other Microsoft apps, a personalized menu is one wherein only the most recently viewed items display. To see the entire list, you have to click the down-pointing double arrows at the bottom of the list. We find this immensely annoying and recommend leaving the option unchecked so that your entire Favorites list will display.

24 Don't mess with my windows. Another of our IE pet peeves is the default enabling of Reuse Windows For Launching Shortcuts in the Advanced tab. This means that when you click a Web link in Outlook, for example, the last active browser window is used to spawn the site for the link you just clicked.

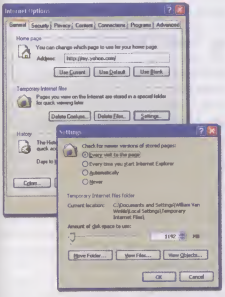
Say you were doing your online banking, switched out to check your email, and clicked a link in a message your friend sent. The target site would pop up in your banking window, forcing you to use the Back button and perhaps log in all over again. Unchecking Reuse Windows For Launching Shortcuts tells IE6 to spawn links in a new window and leave your old windows alone.

25 Big pic, little pic. Historically, large graphics have always extended beyond the browser's borders, requiring the user to scroll around to see the entire image or change the system's display resolution. IE6 throws in a fix to this problem in the form of the

Enable Automatic Image Resizing option located under the Advanced tab's Multimedia area.

With this enabled, oversized graphics are shrunk to fit in the active window. If you hold your mouse over the image, an arrowed icon appears in the bottom right of image. Clicking this expands the image back to full size. Clicking the same icon on the full-size image reduces it again. Occasionally, this back and forth resizing can get irksome. If you'd rather dispense with reduced images altogether, uncheck this option.

26 Automatic maid. If you'd like to delete your temporary Internet files habitually and not have to think about it, look under the Security area in the Advanced tab for a feature called Empty Temporary Internet Files Folder When Browser Is Closed. This is unchecked by default, owing to the speed benefits of having the temp files enabled. However, especially if you're using a broadband connection, the slight speed gain may not be worth the risk and hassle of maintaining a large cache. Just check this option to have IE6 flush the folder's contents every time you close the browser.



If your temporary Internet files are hogging up space on your hard drive, use the Settings dialog box to decrease the folder size. Once you reach the folder's capacity, the new data you save will force the oldest material to be deleted.

Miscellaneous Tips

27 Other ways to go back & forward. Of course, you're familiar with the Back and Forward buttons on the Standard Buttons toolbar, but these can be inconvenient to try and click frequently with your mouse, especially if you've customized the toolbar to display small icons. The keyboard shortcut for these two functions is to hold down the ALT key and pressing the Left or Right arrow keys. Another handy trick to accomplish the same thing is to hold down SHIFT while using your mouse's scroll wheel. Scroll up for Forward and down for Back.

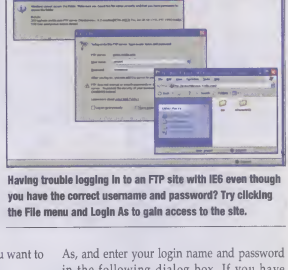
28 Settle the browser dispute. AOL's Netscape (http://www.netscape.com) may be beaten down, but the venerable browser is far from dead. Similarly, Opera's eponymous browser (http://www.opera.com) continues to gain in strength and popularity. You can run any or all of these apps on your system simultaneously, but each time you start a different browser than the last one that ran, the application will pop up a box asking whether you want to make that browser your default.

If you want IE6 to be your default option, be sure to check the box next to Always Perform This Check When Starting Internet Explorer and click the Yes button. When other browsers prompt you with a similar message, check Do Not Show This Dialog Again and click No.

29 Got slow Favorites? Many users have reported seeing very slow response times when trying to pull up and manage their Favorites list. One bizarre help for this is to open a command prompt by clicking Start and Run and typing **cmd** to start a command prompt window, then typing **sfc** and pressing ENTER. That's it. This is the System File Checker, which supposedly has nothing to do with IE6, but apparently Windows is so tightly integrated with the browser now that many users find this has a positive speed effect.

30 Easier FTP login. IE now replaces many of the FTP (File Transfer Protocol) clients we used back in the '90s, but IE6 still isn't as user-friendly as many of the older FTP titles. If the FTP site you're trying to access requires a unique username and login rather than anonymous login, the address you need to type follows this format: ftp://*username:password@ftpserver/url*.

That can be a real pain even on a good day, so one alternative is to type in the regular FTP domain, such as ftp.targetsite.com. After a moment, the browser will deliver an error message. Now click the File menu, select Login As, and enter your login name and password in the following dialog box. If you have AutoComplete enabled for logins and passwords, IE6 will remember your data and automatically log you in to the site the next time you type in that address.



Having trouble logging in to an FTP site with IE6 even though you have the correct username and password? Try clicking the File menu and Login As to gain access to the site.

31 Don't be a billboard. Some third-party applications replace IE6's waving flag icon (which indicates the browser is working) with a logo of their own. If you'd rather keep the flag flying, click Start and Run, and on the Run line type **rundll32 iedkcs32.dll,Clear**.

■ **Surf's Up!** We could tie up the rest of your day with more tips, but by now you should have plenty to digest and be intimately familiar with most of IE6's hidden halls and rooms. Even if you've never been a big fan of Microsoft or Internet Explorer in the past, we're confident that once you get done implementing these many tweaks to conform IE6 to your taste, at the very least you'll be set to enjoy a more rewarding browsing experience. Honestly, though, we're so impressed with IE6's flexibility and robust features that we can't wait to see what comes next in version 7. LS

by William Van Winkle

Network Setup

Connecting Computers Becomes A Snap In Windows XP

With Windows XP, Microsoft has achieved a long-stated goal: automate the networking setup. In doing so, Microsoft has freed users from learning the details of networking technology. If you are setting up a wired LAN (local-area network), networking in WinXP can be as simple as purchasing network hardware, connecting it to your computers and each other, and running the WinXP network setup software (called the Network Setup Wizard).

Unfortunately, not all users meet instant success. A number of factors, ranging from obsolete networking settings to improper hardware installation, can cause problems with network setup and operation, leaving the undereducated user fumbling in the dark. Microsoft has provided a number of tools to help diagnose and resolve any problems that occur. These enhancements can be a big help in solving networking problems. An even better solution, however, is for users to arm themselves with enough knowledge of WinXP networking to avoid problems from the start.

In this article, we'll walk you through the entire network setup process, discussing methods by which your computers connect to one another, how WinXP accomplishes this connection, and what can prevent it from doing so. With this information, you'll be in a much better position to take full advantage of WinXP's networking capabilities.

■ **Mother, May I?** WinXP is an open-minded master. It lets your network incorporate computers running WinXP Home or Professional, WinMe, and Win98. In a test networking four computers, each of which used one of these OSes (operating systems), the WinXP Network Setup Wizard ran beautifully across the board. However, it does not support computers using Windows 95, NT, or 2000.

Similar to earlier consumer versions of Windows, WinXP supports only P2P (peer-to-peer) networking, where all computers share files, folders, and printers. This contrasts with a client/server network, in which one computer (the server) is the secure repository for files and software that are accessed on a regular basis by other, authorized computers (the clients). Some of WinXP's features, such as ICS (Internet Connection Sharing) and the ability to create password-protected user groups, mimic a client/server environment, but true client/server computing is feasible only with Microsoft's server products, such as Win2000 Server Edition.

■ **Ready, Set, Network.** The process of creating a network in WinXP can be divided into three phases: preparation, setup, and troubleshooting. Each phase consists of several steps. The first, network preparation, involves network selection, hardware purchase, and hardware installation.

1 Select a method. WinXP supports two types of networks: Ethernet and phoneline. It does not support **powerline** networks, where network data runs across the existing electrical wiring in your home. **Ethernet**, the world's most popular LAN architecture, distributes data via special, high-bandwidth cables. **Phoneline networks**, on the other hand, transfer data across the existing telephone wiring in your home, using a different frequency from your telephone transmissions. Both can connect 50 or more computers across distances much greater than those found in the average house (300 feet for Ethernet; 500 feet for phoneline).

Ethernet networks require more equipment (see the next section) but can be much faster than phoneline networks. With a WinXP LAN, **bandwidth** (the total amount of data that can travel across the entire network at once) is divided among all the members of the network.

Standard Ethernet offers 10Mbps (megabits per second) of bandwidth, Fast Ethernet offers 100Mbps, and phoneline, which is officially rated at 10Mbps, averages between 8Mbps and 16Mbps. Nonetheless, phoneline is fast enough for most small networks, even if you are sharing a high-speed Internet connection.

When purchasing a network adapter, users can choose an internal NIC (network interface card, top), an external model (left), or a compact USB (Universal Serial Bus)-to-Ethernet plug (right). All the adapters that are shown here are from Linksys (http://www.linksys.com).

You can mix and match network types, connecting some of the computers in your house via Ethernet cable and others via phoneline (or with wireless adapters). WinXP contains a new feature, **Network Bridging**, that is configured during network setup. With Network Bridging, one computer acts as the central distribution point connecting two or more networks. Network Bridging is beyond the scope of this article, but more information can be found in WinXP's Help and Support (on the Start menu). Use **Network Bridge Overview** as your search keywords.

2 Go shopping. The hardware required to network your computers will depend upon on the equipment already installed in those computers and the type of network you choose. In addition to the cables mentioned above, you may need to purchase two additional network components: **network adapters**, which act as translators between the computer and the network, and **hubs**, which send and receive requests and data to and from the various members of the network.

Network adapters. No matter which type of network you choose, you'll need a network adapter on each PC in the network. WinXP does not require all adapters on the network to be the same model. However, some adapters, especially older ones, can be incompatible with others, so it's always a good idea to use adapters from the same manufacturer if possible.

Network adapters can be external or internal. External adapters are much easier to install (no opening the back of your PC) and come in both desktop and compact (mini-plug) models. They plug into unused USB (Universal Serial Bus) ports, turning it into an Ethernet or HPNA (Home Phoneline Networking Alliance) adapter. Internal adapters are called NICs (network interface cards). Many newer PCs come standard with an Ethernet NIC. To see if you have one, look for a connector that resembles a phone connection but is about 50% larger. As of this writing, only custom-order PCs come with HPNA NICs. These connectors look just like the phone jacks found in modems.

If your PC has an NIC but it is being used for a broadband connection, you will have to install a second adapter unless you want to buy a device that can distribute the Internet connection among all the members of the network. These devices are called **residential gateways** or **Internet routers.** They create a private network that lets all the computers on the network access a broadband Internet connection simultaneously. They also usually offer network firewall protection (make sure yours does). Additionally, if you plan to bridge two networks with one of your PCs, you'll need a separate adapter for each network.

Network hubs. Most Ethernet networks use a hub or its more complex cousin, a switch or router, to distribute data to and from all the computers on a network. You can also connect two computers directly using two-way Ethernet cables, but hubs are inexpensive and allow for future expansion. Most hubs, switches, and routers have ports for each of the computers on the P2P network plus an uplink port for a central data source, which can be another computer or an Internet connection.

Hubs transmit data from one computer to all the members of the network, while switches and routers have the capability to directing messages to and from specific computers. Hubs are the least expensive option and are fine for home networks using an Internet connection that runs directly into one of the computers. If you have a broadband Ethernet Internet connection and you want to give the members of your network direct access to it, do not plug the broadband connection into a hub's uplink port—purchase a gateway. No matter which type of connecting device you purchase, make sure it has enough ports to connect all the computers on your network.

Unlike Ethernet networks, phoneline networks do not require a centralized connection device. If you want each computer to have direct access to a broadband connection, however, you will need a gateway.

Network cables. For Ethernet networks, you'll need enough twisted-pair, Ethernet-grade (category 5 [generally abbreviated as CAT5] or better) cabling to connect all the computers in your network. Before you purchase cables, make a schematic of your network and measure the distances between each computer. Don't forget to account for wires that must travel up and down walls if you are going between rooms or through the ceiling. Many computer stores sell ready-made Ethernet cables with connections on each end in lengths as long as 50 feet. For greater distances, order custom cables.

Phoneline networks run across the existing telephone lines installed in your home and do not require special cables, although you will need a short phone line to connect each computer to a wall jack. You can connect more than one computer to the same phone line if you purchase a special two-into-one adapter.

3 Make a connection. Once you've purchased the network hardware, install any required network adapters (or have them professionally installed). With each network card you install, Windows should automatically detect the new hardware and walk you through the setup process. If Windows does not sense the card, or it recognizes it as something other than a LAN adapter, check with the device's manufacturer for further instructions.

Ethernet: After WinXP installs your network adapters, turn off the computers you wish to network and connect each one to the network hub or gateway with Ethernet cables. If you are running your broadband connection through the gateway, connect it to the designated port. No special software installation should be required for a hub or central connecting device, but check the product's documentation to be sure. Turn on all computers and the hub or gateway. There will be lights on the front of the hub. The number that are illuminated should correspond to the number of connections (computer and Internet). If this is not the case, there is a loose connection; double-check all your cables.

Phoneline: After WinXP installs your network adapters, turn off the computers you wish to network and connect each one to a telephone jack in your home. If you have more than one phone line in your home, make sure all computers are connected to the same line. Turn on all your computers

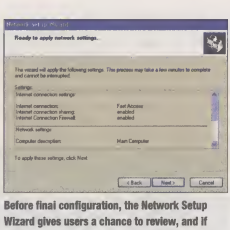
■ **Phase Two: Network Setup.** After all network hardware is installed and connected, you're almost ready to run the Network Setup Wizard. With WinXP's wizard, network setup is a simple, seven-step process, but it does require careful decision-making on your part, both before and during setup.

1 **Choose a host.** Before you run the setup wizard, decide if you need (and want) ICS. With ICS, one host computer shares its Internet connection with the other members of the network. When any other computer connects to the Internet, it does so through the connection on the ICS host. If the host computer is not turned on or cannot connect to the Internet, none of the computers on the network can access the Internet (unless they have their own Internet connection).

ICS has been present as an option since Win98 but has become a key feature of networking with WinXP. There is no longer a separate ICS wizard as the function has been integrated into the Network Setup Wizard. Nevertheless, ICS is optional: You do not need an Internet connection to establish a network with WinXP, and you do not have to enable ICS even if you have one. Whether WinXP enables ICS depends on the options you choose during network setup.

With certain exceptions, ICS is the preferred method for sharing one Internet connection, either dial-up or broadband, with the other computers on a WinXP LAN unless you have a gateway. If any of the computers on your network are already members of another network, ICS probably should not be enabled (check with the administrator of the other network). ICS creates private **IP (Internet Protocol) addresses** (numeric sequences that identify each computer) for each member of the network. These may conflict with the IP addresses assigned by the other network

ICS does not work well (or at all) with Internet connections that use PPPoE (Point-to-Point Protocol over Ethernet), a new protocol in WinXP designed to enhance the stability of broadband connections. If you have a broadband connection, go to the Start


Ready to apply network settings.
The wizard will apply the following settings. This process may take a few minutes to complete and cannot be interrupted.
Settings:
Internet connection settings:
Internet connection: Fast Access
Internet connection sharing: enabled
Internet Connection Firewall: enabled
Network settings:
Computer description: Main Computer
To apply these settings, click Next.
< Back
Next >
Cancel

Before final configuration, the Network Setup Wizard gives users a chance to review, and if necessary go back and change, the proposed settings for the network.

menu and select Connect To. Choose Show All Connections to open the Network Connections folder. Look under Broadband. If the connection says PPPoE, you will probably not be able to use ICS and will need to purchase a gateway if you wish to share your Internet connection.

If you plan to use ICS, choosing a WinXP computer as the ICS host provides the greatest measure of security. You'll run the Network Setup Wizard on that computer first. If ICS is currently running on any other computer on the network, disable it. To disable ICS on another WinXP computer, locate the Internet connection in the Network Connections applet in the Control Panel (click Start, Control Panel, Network And Internet Connections, and Network Connections), right-click the connection and select Properties. Under the Networking tab, deselect the option for Internet Connection Sharing. For instructions on disabling ICS in Win98 or WinMe computers, refer to Microsoft Knowledge Base (http://support.microsoft.com) article Q230112. (For assistance with using the Knowledge Base, see the "One-Stop Answer Shop" on page 137.)

2 **Meet the wizard.** Log on to the ICS host computer (or any WinXP computer if you are not using ICS) with a username that has administrator privileges. If you have not created multiple user profiles, you will be logged on as an administrator by default and connect to the Internet. Open the Network Connections applet and choose Set Up A Home Or Small Office Network. The Network Setup Wizard will open. Click Next twice to move past the Welcome screen and the Hardware checklist screen (you have already taken these steps). WinXP will now search your system for network and Internet connections and make a recommendation based on what it finds.

3 **Pick a configuration.** Review WinXP's recommended network configuration, and change it if necessary, before you click Next. It's important to choose the configuration that most closely matches your computer, no matter what WinXP suggests.

If you are enabling ICS, choose the first option: This Computer Connects Directly To The Internet. If you are using a gateway, choose the second option: This Computer Connects To The Internet Through Another Computer. If you are using ICS on the host computer, you will also choose this option for all other members on the network when you run the Network Setup Wizard on them later. If you are not using ICS or a gateway, or if you do not have an Internet connection, choose the third option: Other.

On the next screen, choose the first option, This Computer Connects To The Internet Directly, if you do not want to enable ICS. The second option is for those who do not have a network and will not apply here. The third option is for those without an Internet connection. Users with a broadband Internet connection should never choose the third option, even if they do not want to share it. WinXP will assume the broadband connection is network related and attempt to bridge it to the network, causing problems.

4 **Choose a connection.** If you indicated you have an Internet connection in the previous step, the wizard will now ask you to identify that Internet connection. It is very important that you select the correct connection. If you are uncertain which connection is linked to the Internet, click How To Determine Your Internet Connection for more information.

During this step, WinXP will turn on Internet Connection Sharing if you choose the first option on the previous screen. If you have an Internet connection, it will also turn on ICF (Internet Connection Firewall). ICF creates a basic firewall between the Internet and the computer on which ICF is installed. If you accidentally identify your network connection as the Internet connection, WinXP will enable ICF on it. This will disrupt network communications.

Click Next, and WinXP will configure your Internet connection. In most cases, WinXP will take you straight to step 5. If WinXP detects multiple LAN connections not used for the

Internet, however, a different screen will appear, informing you of the need to create a network bridge. If you have multiple connections, let WinXP perform this step. If you only have two network connections, one for the Internet and one for the network, WinXP should not create a bridge. If it attempts to do so, you have provided faulty information in the previous step and should back up. When you are finished, click Next.

5 Name your family. The wizard will now prompt you to enter a computer description and name. Each computer name on the network must be unique; it can be any combination of 15 letters, numbers, and punctuation marks. Click Next, and you will be prompted to enter a workgroup name. This can also be any combination of 15 characters, but it must be identical for every computer on your network. Click Next.

6 Configure settings. WinXP will now display your network settings. Check over these before you proceed. As soon as you click Next, WinXP will configure your computer for networking. It will enable file and printer sharing and Internet sharing (if you so instructed it). This process may take several minutes.

7 Template for others. When configuration is complete, you will be prompted to choose a method for running the Network Setup Wizard on other computers. Run it on every computer in your network. If you have a CD-ROM drive on all the networked computers, use your WinXP CD. If not, create a Network Setup Disk. You will need a diskette for this; WinXP will not let you burn the information to a CD.

If there is a problem with your network adapter or cable, Windows XP will let you know about it by placing a red X over the connection's icon in the Network Connections folder.

Click Next, and WinXP will present its final screen. Click Finish (you can view the information on Shared Folders later). Visit each computer on your network and insert the WinXP CD or Network Setup Disk. If you use the CD, the WinXP Welcome Menu will open on the Desktop. Choose Perform Additional Tasks and then Set Up Home Or Small Office Networking.

If you are using a diskette, double-click My Computer, then 3 1/2 Floppy (A:). Double-click Netsetup.exe. Follow the prompts to run the Network Setup Wizard. When the wizard asks if you wish to create a Network Setup Disk, choose Use the Disk I Already Have and finish the wizard on each computer.

8 Share the wealth. After the wizard closes, open the Network Connections applet on any of the networked computers and click My Network Places under Other Places. You can also select My Network Places from the Start menu (WinXP), My Network Places from the Desktop (WinMe), or Network Neighborhood on the Desktop (Win98). Each computer on the network will now be visible (in WinMe and Win98, click past the Entire Neighborhood and Workgroup icons).

Click a computer icon to reveal the ShareDocs folder. This may be unnecessary in WinXP, depending on your view. This is the Shared Documents folder, where file sharing transpires. To share a document with other users, move, save, or copy it to any of the Shared Documents folders. Printers installed on any computer in your network will now appear in the Printers folder and in the print options of Windows programs for all computers on the network (unless sharing has been disabled for a particular printer). If they do not (which may happen on non-WinXP computers), you can add them using the Add Printers wizard (choose the Printers icon in Control Panel).

WinXP lets you share additional files and folders. If you wish to set up additional file sharing, we strongly urge you to password-protect all shared resources to guard against unauthorized intrusion. For more information on advanced file sharing, open Help And Support on the Start menu and perform a search with the keywords **File Sharing**. If at any time during file sharing setup you are prompted to run the Network Setup Wizard, do not do so. WinXP may enable ICF on your network connection, and you will not be able to share files or folders.

■ **Phase Three: Looking For Trouble.** If you've followed the steps detailed in the previous section and have been careful to make the appropriate choices, you shouldn't have any problems with your WinXP network. If, however, any computer on your network does not appear to the others, or the Shared Documents folders of the other network members do not appear to it, it's time to troubleshoot.

WinXP provides several excellent utilities under the general banner of Network Troubleshooter. To access the Network Troubleshooter, open the Network Connections applet and Network Troubleshooter under See Also in the left pane. When the Network Troubleshooter opens, you can choose any of several troubleshooting routines to solve network, file sharing, printer sharing, and other problems.

You can also test the TCP/IP configuration (the second option under Pick A Task). WinXP will send a message to all the computers on the network to see if they respond. If they do, your hardware connections are good and the protocols are properly configured. This means other components of the network, such as the software utilities discussed earlier, are causing the trouble.

If you cannot resolve your network problems with the troubleshooters, Microsoft's Knowledge Base has an extensive collection of troubleshooting articles. Microsoft recommends users begin their searches by typing **Q308007**. Users with routers or gateways should try **Q315978**. You can also search by any specific messages you receive. Advanced users will find valuable assistance at the WinXP Expert Zone (http://www.microsoft.com/windowsxp/expertzone).

■ **Wired & Ready.** With WinXP and a P2P network, you can enjoy most of the benefits of networking, sharing printers, files, and (usually) Internet connections. If you are using a gateway and a broadband Internet connection, you will also be able to enjoy multiplayer Internet gaming. Although some users may eventually want to upgrade to a client/server environment, most users will be perfectly content with P2P networks. They're fast, they're reasonably priced, and with WinXP, they're also easier than ever before. LS

by Jennifer Farwell

No Strings Attached

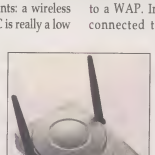
Wireless Networking With WinXP

You listened intently to the clerk at your favorite electronics store, gaining confidence as he described the way wireless networking was going to change the way you used your computer. Your friend nodded knowingly and you felt a rush of pride for being on the "cutting edge." As you handed your credit card over to the cashier, you glanced at the carton that held the wireless hardware and noted the free technical support. Now, eight hours later, you sit with your computers cast about in disarray and wonder gloomily, "What went wrong?"

To help make your transition to the world of wireless networking a bit smoother, we've assembled a guide that should help you set up and configure your network with the least amount of pain and heartache.

■ **The Buzzwords.** The first step in taking advantage of today's wireless technology is to understand some of the terminology. In the next section we'll talk about WAPs (wireless access points), NICs (network interface cards), and a host of other TLAs (three-letter acronyms). You won't need a degree in electrical engineering to set up your network, but a little homework will help you get the most out of wireless networking. In our lab, we used Linksys (http://www.linksys.com) and SOHOware (http://www.sohoware.com) wireless equipment to set up our networks. All the equipment worked flawlessly.

■ **The Components.** Most wireless networks consist of two components: a wireless NIC and a WAP. A wireless NIC is really a low power radio transceiver. Installed in your computer, it sends and receives data to and from either a WAP or another wireless NIC in another computer. A WAP acts as a hub for all the computers on your network. Data is transmitted to the WAP, and then forwarded either to the Internet or to another computer that resides on your WLAN (wireless local-area network). On most wireless networks, you'll connect your WAP to either an existing wired network or directly to your Internet gateway.



Access points such as SOHOware's CableFREE II hub let you free your network of the tangle of wires and cables.

■ **Network Types.** No two networks are the same, but most Windows-based networks fall into one of two models: a shared connection network and a resource-sharing network.

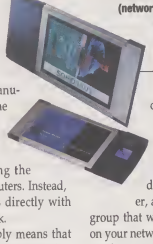
Shared connection. This type of network is intended solely for sharing your Internet connection amongst several computers. With the advent of high-speed Internet connections such as DSL (Digital Subscriber Line) and cable modems, this has become a popular configuration. The general layout will involve a router provided by your ISP (Internet service provider), a WAP, and a wireless NIC for each computer that will share the connection. This is one of the easiest networks to set up and configure.

Resource sharing. Although this type of network takes a bit more work than the shared connection model, it lets you utilize computer peripherals more efficiently. Like the shared connection model, all your computers will share the same Internet connection. However, with the resource sharing setup, you can also share files, printers, scanners, and even unused disk space.

Legacy considerations. If you already have a wired Ethernet network in your home or office, adding a wireless network to it can increase its value by letting you use existing components such as scanners and printers. Unless all of your computers need to have a wireless connection, you can retain your existing infrastructure to save money.

■ **In A Nutshell.** A simple shared connection network consists of one computer equipped with a wireless NIC, which transmits data back and forth from your computer to a WAP. In turn, the WAP is physically connected to your DSL router or cable modem. The only difference between the two types of networks is that in a resource sharing network you have more than one computer hooked up to the network, and that you enable resource sharing through Windows

XP. In this article, we'll configure a resource-sharing network.



The SOHOware (top) and Linksys wireless NICs (network interface cards) provide a wireless connection between your notebook computer and the WAP or wireless hub.

■ **Network Types: Ad Hoc vs. Infrastructure.** As with any new technology, manufacturers feel compelled to come up with new phrases to describe their technology. An "ad hoc" wireless network has no central WAP directing the communication between computers. Instead, each computer communicates directly with other computers on the network.

"Infrastructure mode" simply means that each wireless computer (sometimes referred to as a "node") talks to the WAP. Although using an ad hoc system may be cheaper because you don't need to purchase a WAP, most home users will benefit from the WAP's ability to serve as a hub for all your network connections. For most home users, the added benefits of using a WAP are well worth the additional cost.

■ **Gather Information.** Before you can set up your wireless network, you'll want to gather several pieces of information from your ISP. Each type of Internet connection varies, but the most important thing to find out is whether or not your ISP uses DHCP (Dynamic Host Configuration Protocol). DHCP is a way of automating the assignment of network IP (Internet Protocol) addresses and other information. When a computer joins a DHCP network, it sends a request for this address and relevant network information. Most ISPs use DHCP for DSL lines and cable modems.

If your provider doesn't use DHCP but instead assigns static IP addresses, you'll need to obtain the following information from the ISP: the IP address of your DSL/cable gateway, the netmask for this address (sometimes referred to as the subnet mask), your DNS (Domain Name Server) addresses, and the IP addresses you should use for your computers. Write these down for easy reference as you configure your WLAN.

WinXP has made great strides in simplifying the setup procedure for WLANs. If your ISP uses an exotic technology to connect you to the Internet, don't hesitate to contact the service provider or the manufacturer of your wireless equipment. During our testing, we contacted Linksys' Tech Support and they promptly solved our sample problem. While we didn't contact SOHOware's phone support, we found that their online technical support was thorough and easy to navigate.

■ **Configuring Hostnames & Workgroups.** You'll need to decide on names for each computer, as well as the name for the workgroup that will encompass all the computers on your network. The workgroup name can be anything you desire, but keeping it to 8 characters or fewer may be beneficial if you add older OSes (operating systems) to your network; older OSes, such as Windows 95, place a limit on the length of a computer name and will have difficulty if you name your computer something like "Suzanna's Totally Cool Computer That Larry Better Stay Away From." Of course, if you don't plan on using any OS other than Windows XP, feel free to name your computers whatever you like.

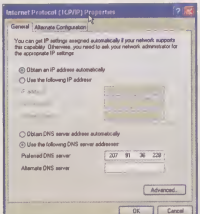
The names for your computers need to be unique, so if any of them currently share a common name, you'll need to rename them. To do this in WinXP, go to Start, and right-click My Computer. Select Properties, then the Computer Name tab. Selecting the Change button will open a dialog box where you can enter a new computer name and also change your workgroup name. In our example, we'll name the notebook running WinXP "XPLAPTOP," and we'll name our workgroup WORKGROUP. WinXP will remind you that these changes won't take effect until you restart your computer, so don't forget this step.

After configuring our notebook, we'll double-check the other two computers in our lab, HOME, and HOME2. HOME2 has a Hewlett-Packard LaserJet printer that we'll configure for sharing, once our WLAN is running. HOME has some available space on its hard drive that we'll also want to share. Both names are unique on our network, and both have WORKGROUP as their workgroup name.

■ **Install & Configure The Wireless Access Point.** Configuring your WAP will probably be the most difficult part of setting up your WLAN. This is where your preparation will pay off. Not all WAPs are configured in the same manner. Many don't even require you to do much more than plug in a power cable and connect the WAP to your Internet gateway. In our case, we also want to enable **WEP (Wired Equivalent Privacy**; a security protocol for wireless networks), and the following instructions on enabling WEP apply specifically to Linksys' WAP. To configure the WAP, you'll need an Ethernet cable and network card. Our notebook has an Ethernet interface built-in, so we used it for our WAP configuration. Our next step was connecting the notebook to the WAP's first LAN port.

In order to configure the WAP, we need to assign our notebook a temporary IP address so that it can communicate with the WAP. To do so, select Start, then Network Connections. In the Network Connections administration window, right-click Ethernet NIC and choose Properties. In the General Tab, highlight Internet Protocol (TCP/IP) and select Properties. Select Use The Following IP Address, and enter the settings specified in the Linksys instructions:

IP address:	192.168.1.2
Subnet mask:	255.255.255.0
Default gateway:	192.168.1.1


Internet Protocol (TCP/IP) Properties
General
Alternate Configuration
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
Subnet mask:
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
207 91 36 239
Alternate DNS server:
Advanced...
OK
Cancel

Configuring your NICs (network interface cards) to use DHCP (Dynamic Host Configuration Protocol) lets them retrieve network configuration information from a central DHCP server.

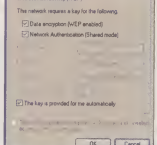
Under the DNS section, enter the IP address the ISP provided. Click OK to close the window, and you've successfully configured your NIC to communicate with the WAP. (Keep in mind that in our example we're configuring a Linksys WAP. If you're using a different manufacturer's hardware, these values might be different.)

Configure the Access Point. Management of the WAP in our example is performed through a

built-in Web server. To access the management interface, we opened a browser on XPLAPTOP, and entered **http://192.168.1.1** in the Address Bar. This is the default IP address of our Linksys WAP. A login window then prompted us for the username and password required to access the WAP. Linksys' Web-based configuration utility will greet you once you're past these security measures.

Most WAPs offer a host of configuration options, but the most important ones we'll address are the WEP and IP Address options.

What's WEP got to do with it? WEP is a security protocol intended to give a WLAN roughly the same protection as a wired network. Unfortunately, WEP has several fatal flaws that permit malicious characters to circumvent it. Despite these flaws, enabling WEP is a good idea because it at least erects barriers that crackers must overcome before they can take advantage of your WLAN.



Enabling WEP (Wired Equivalent Privacy) makes it more difficult for casual hackers to penetrate your wireless network.

To use WEP, you must first enable it on the WAP and then configure each client computer to use it. Selecting the WEP Key Setting button on the Linksys WAP configuration screen opens up the WEP configuration utility. Your options are 64-bit or 128-bit keys; choose 128-bit. (The longer key makes it more difficult to penetrate WEP.) Enter a random passphrase and select the Generate button to produce a 26-character key. This key is generated using a complex algorithm that converts your passphrase into a unique key. (Regardless of your passphrase's length, the algorithm will generate a 26-character key.) Write this key down, as you'll need to enter it on all of the client computers. Clicking Apply will transfer the key you just generated to the WAP.

The WAN IP address. To your router or cable modem, the AP is just another computer on the network; like all computers on the network, it will need a unique IP address, as well as some other network settings, including Default Gateway, Subnet Mask, and the IP addresses of your ISP's DNS servers. Because our DSL router has a built-in DHCP server, we don't need to modify the WAN IP address at all. Like most consumer WAPs, our WAP uses DHCP to request its network settings, but check your documentation to be sure.

Connect the AP. Next we connect our AP to our DSL router with the crossover cable provided by our ISP. This cable connects the WAN port on the WAP to the Ethernet port on our DSL router. Once we power up the WAP, it sends a DHCP request to the router and automatically retrieves its network configuration data.

You may be wondering why you need an Ethernet interface to configure the WAP. For security reasons, most WAPs ship with remote administration turned off by default. Although this is inconvenient if you don't have an Ethernet NIC, it provides a greater level of security by requiring a physical connection for configuring the WAP. After you've configured the WAP, you can change the WAP to permit remote administration.

■ **Configure The Clients.** Our next step was to configure our three computers (XPLATOP, HOME, and HOME2) to communicate with the WAP. First we disconnected our Ethernet cable from XPLAPTOP and the WAP, then inserted the wireless NIC into the notebook's PCMCIA slot. After the NIC was in place, we installed the drivers the vendor provided. Here's where WinXP's wireless network configuration utilities really shine. As soon as the drivers for the wireless NIC were installed, XP detected our WAP and notified us with a pop-up balloon over our System Tray. Clicking the pop-up balloon opened a connection window displaying the names of all available wireless networks. We changed the name of our WLAN to *HOME*, and then clicked Connect. With bated breath, we launched Internet Explorer and waited while it began to load our home page. And waited, and waited, and waited some more. Then we realized we had made two mistakes: The wireless NIC wasn't configured for DHCP, and we hadn't configured the client to use WEP.

Wireless Network Connection Properties
General
Wireless Networks
Authentication
Advanced
Internet Connection Firewall
Protect my computer and network by limiting or preventing access to the computer from the Internet
Learn more about Internet Connection Firewall
If you're not sure how to set these properties, use the Network Setup Wizard instead.
OK
Cancel

Don't forget that Windows XP includes a built-in personal firewall.

DHCP. The step we missed was setting up the wireless NIC to retrieve its network information from the DSL router through DHCP. To do that, select Start, then Network Connections. In the Network Connections administration window, right-click Wireless Network Connection and choose Properties. In the General tab, highlight Internet Protocol (TCP/IP) and select Properties. Select Obtain An IP Address Automatically and Obtain DNS Server Address Automatically. Depending on your ISP, you may have to manually enter the IP addresses for your DNS servers. Click OK to finalize these changes. Once we configure WEP, the wireless NIC will send a request to the DSL router for its network configuration.

Configure WEP. As long as you've kept the WEP key you generated previously, you shouldn't have any trouble configuring WEP. Click the Network icon in your System Tray. Select Properties, then the Wireless Network tab. Under Preferred Networks, highlight HOME, then Properties. In the Properties window, mark the Data Encryption (WEP Enabled) checkbox and remove the check from the box labeled The Key Is Provided For Me Automatically. This will let you access four more fields in the Properties window: Network Key, Key Format, Key Length, and Key Index. In the Network Key field, enter the WEP key you generated in our previous step. In the Key Format field, choose Hexadecimal Digits, and leave Key Length set to 104 bits (26 digits). You shouldn't need to alter the Key Index. After you've entered these values, click OK. As long as you didn't make a mistake entering the WEP key, you should now be able to access the Internet via your WAP.

With XPLAPTOP successfully configured to use the WLAN, our next task is to repeat the same client configuration steps for the HOME and HOME2 machines. Once each system is properly configured, you should be able to see them on the network. To check, go to Start, then to My Network Places. Choose View Workgroup Computers and after a moment, HOME, HOME2, and XPLAPTOP should be visible. Each machine should be able to see itself and all of the others.

■ **Share A Printer.** One of the benefits of a home network is the ability to share peripherals such as printers. In our example, we want to share the LaserJet printer that is physically connected to HOME2. The LaserJet is already installed and functioning properly for HOME2, of course. Our goal is to be able to print to it from XPLAPTOP.

Configuring the printer. The first step is to set up our LaserJet for sharing on HOME2. On HOME2, go to Start, My Computer, then Control Panel. Click Printers And Faxes, then right-click on the printer; select Properties. In the Sharing tab, select Share This Printer, and enter a name for the printer. Click Apply to activate this change. In the Printer And Faxes panel, the icon for your printer should change to a printer with a hand holding it, indicating that the printer is now shared.

Configure the clients. In WinXP, printer configuration consists of only a few steps. On the client you're configuring (XPLAPTOP, in our example), go to Start, My Computer, then Control Panel. Click on Printers And Faxes, then choose Add A Printer. This will launch the Add Printer Wizard. Click Next and choose A Network Printer, Or A Printer Attached To Another Computer. Click Next to advance to the next step, where Browse For A Printer is the default selection. Leave this selected and choose Next again. Your computer will take a moment to scan your network for available printers. Eventually it will display all the computers on your network, and any printers that have been shared. We clicked HOME2, and then highlighted LaserJet. Clicking Next enabled this printer and we were finished. To test your work, right-click your printer in the Printer And Faxes window; choose Properties. At the bottom of the General tab is a Print Test Page button. Click it and, if you've successfully shared the device, your printer should begin printing the standard WinXP printer test page.

You can evaluate your WLAN's (wireless local-area network's) performance by checking your wireless NIC's (network interface card's) status window.

■ **Share A Hard Drive.** Conveniently, Microsoft has made creating shares on hard drives similar to sharing printers. A hard drive share lets one computer store or access files on a second computer. Just as with sharing a printer, the process entails two steps: configuring the share and configuring the clients. We'll share the C: drive of HOME, and we'll name it CDRIVE.

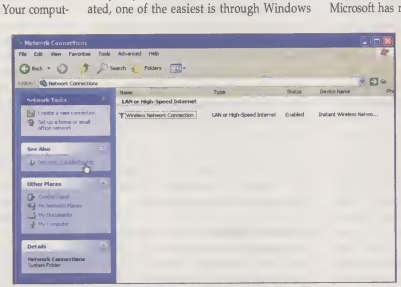
Configure the share. To create a shared drive on HOME, go to Start, then My Computer. Right-click on Local Disk (C:) and choose Sharing And Security. This will open the Local Disk Properties dialog box, with the Sharing tab selected. Microsoft warns you that sharing the root of a drive is not recommended, but gives you the option to do so. Click If You Understand The Risk But Still Want To Share The Root Of The Drive, Click Here. This will reveal two options, Local Sharing And Security and Network Sharing And Security. Check Share This Folder On The Network, and enter a share name of your choosing. If you want to limit access to the share, you can uncheck Allow Network Users To Change My Files; anyone connecting to that share will be granted read-only access to your files. Click Apply to activate the share.

Configure the clients. Although there are many ways to access the share we've just created, one of the easiest is through Windows Explorer. You can also create a mapped drive, or add the share as a Network Place, but using Windows Explorer is simpler, because it requires no special configuration. Just open it up and browse to the appropriate workstation.

■ **Troubleshooting.** Wireless networking is still a work in progress, and despite Microsoft's efforts to simplify the process you may run into problems during setup process or during routine use. Two valuable resources are the Network Troubleshooter Wizard and your wireless equipment vendor. To access the Network Troubleshooter Wizard, go to Start, Network Connections, and launch the wizard. It won't solve all of the potential problems you may face, but it's a good starting point for troubleshooting. Another good resource is your vendor's support staff, who are usually very familiar with the problems you'll face.

Common issues. In our testing, we found some common problems with setting up our WLAN. The first was with the use of personal firewalls such as ZoneAlarm (http://www.zonelabs.com) and BlackICE Defender (http://www.networkice.com). If you use one of these products, you may have to check with the firewall vendor for configuration information. The other common problem was incorrectly entering the name of the WLAN workgroup. By following our guidelines, you should avoid most of these problems.

■ **Cut The Apron Strings.** Wireless networking is quickly becoming one of the predominant forms of home networking and is finding a large niche in the corporate world, as well. Microsoft has recognized this with strong support for WLANs in WinXP. In conjunction with well-made wireless hardware, this has put setting up a WLAN well within the grasp of most computer users. Vendors are already releasing WLAN hardware with enhanced security and faster transmission rates, while simultaneously lowering prices. If you've postponed joining the wireless world, the time has never been better to experience the freedom of wireless networking. LS



Windows XP's comprehensive Network Troubleshooter Wizard can help solve configuration problems.

by Chris Jackson

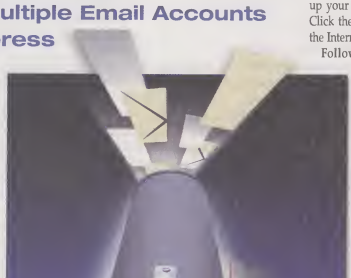
Inboxes Without Borders

Consolidate Multiple Email Accounts In Outlook Express

In a perfect world, a person would have just one telephone number and one email address, and you would always know how to call a person and where to send the person email messages.

In the real world, however, most of us have different telephone numbers for our homes, office, cell phones, and pagers. It is also common to have a work-related email address (jdoe@mycompany.com), a personal address (johndoe@attbi.com), and maybe even a Web-based address at Yahoo!, MSN, or Hotmail (jd123@hotmail.com).

If you receive email messages at two or more addresses, Microsoft's Outlook Express can help you consolidate your messages into a single inbox; the new Version 6 can even help you keep tabs on your Web-based Hotmail messages.



Through Rain, Sleet, Or Snow. If you have a work-related email address, it is probably associated with your company's domain name (http://www.mycompany.com) and hosted on a POP3 (Post Office Protocol version 3) or IMAP (Internet Mail Access Protocol) server. These two protocols, along with SMTP (Simple Mail Transfer Protocol), are the standards for email transmission across the Internet.

Many personal email accounts that ISPs (Internet service providers), such as AT&T and EarthLink, issue are also Internet accounts. Typical Internet email clients include Microsoft's Outlook and Outlook Express, Netscape's Mail, and QUALCOMM's Eudora. These programs execute on your PC. They retrieve (pull) your incoming messages from a POP3 or IMAP email server and transmit (push) your outgoing messages to an SMTP server. As a user, you interact with the client software and it communicates with the email server.

A Web-based email system is hosted on an HTTP (Hypertext Transfer Protocol) server, and it permits you to read and send email from any computer connected to the Internet using only a browser, such as Internet Explorer or Netscape. Web-based email messages are received, read, stored, composed, and sent by the HTTP server, and the actual message is never transferred to or from your PC. Web-based email accounts are convenient because they don't require any special setup. As a result, you can access your email from a friend's computer, a computer in your company's branch office, or an Internet cafe in some remote part of the world.

Special Delivery. Assuming you already use Outlook Express to receive your personal email at home, setting up a second account to receive your work-related email is easy. These steps are also useful if you are setting up your first email account in Outlook Express.

Open Outlook Express by clicking the Start button and clicking the E-mail icon at the top left of the menu. Click Tools (or press ALT-T), click Accounts to open the Internet Accounts window, and click the Mail tab. If you already have one email account set up, it will appear in the white box below the tabs. If you are setting up your first account, this box will be empty. Click the Add button and select Mail to start the Internet Connection Wizard.

Follow the wizard. On the wizard's first screen, enter your name as you want it to appear to others when they receive email from this account. This name is completely arbitrary and if you use Outlook Express to process multiple accounts, each one can have a different Display Name. For example, messages from your work-related account might appear to have come from Dr. John Doe, M.D., while mail from your personal account might appear to be from Big John. After you enter an appropriate Display Name, click Next to continue.

The wizard's second screen is where you enter your actual email address. This must match the account the way it is set up on the mail server, so be accurate when typing this entry. Click Next to continue.

Tale of two servers. On the third screen, you must indicate the type of server your account resides on and enter the names of both the incoming and outgoing mail servers. The normal server type for Internet-based email is POP3, and you should select that option unless your system administrator has specifically told you to use IMAP. We will discuss the HTTP option below.

Your system administrator or ISP must provide the correct names for the two server entries, but they are often mail.*mycompany*.com and smtp.*mycompany*.com or simply mail.*mycompany*.com for both.

The fourth screen of the Internet Connection Wizard is where you enter the account name and password necessary for Outlook Express to establish a connection with the mail servers. Again, your system administrator or ISP must provide these, and they are typically case-sensitive. If others share your computer, you may want to leave the box labeled Remember Password unchecked. This will force you to enter the password every time Outlook Express connects to the mail servers. If you do not share

the computer, check this box. Click Next to continue to the final screen.

Ready for more. Click Finish to complete the wizard. This returns you to Outlook Express' Internet Accounts window, and you should see your new connection among the entries. By default, its name is the same as the value you entered in the Incoming Mail Server field on the third screen of the wizard.

To change the name of the account, select it and click the Properties button. You can change the first field on the General tab to something more meaningful, such as Work Email. At the bottom of the screen there is a checkbox labeled Include This Account When Receiving Mail Or Synchronizing. This box is checked by default, which means that this account will be accessed anytime Outlook Express checks for new email or whenever you click the Send/Recv button. If you clear this box, Outlook Express only checks the account if you tell it to do so by clicking Tools, pointing to Send And Receive, and selecting the account. This feature is useful if you normally receive your work email from a computer at the office but you wish to receive it on your home computer while you are on vacation. Click OK to save your changes and return to the Internet Connections window.

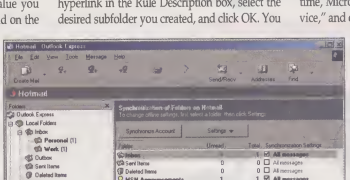
■ **Sorted Mail.** Now that you have a second email account in Outlook Express, how do you manage your messages? By default, Outlook Express delivers all incoming messages to the Inbox, regardless of which account they were sent to, but a few steps can change this.

With Outlook Express open to its main window, you should see two panes. The left pane displays a list of folders, and the pane on the right displays the messages in the selected folder. If you don't have this view, click View, click Layout, check the Folder List box, and click OK.

In the left pane, right-click Inbox and click New Folder. Enter a name for the subfolder, such as Work, and click OK. You will see the new folder appear under the Inbox folder.

Direct deposit. To have your work-related email delivered to this subfolder, you must create a simple rule for Outlook Express. Click the Tools menu, point to Message Rules, and click Mail. In the top box, check Where The To Or CC Line Contains People (you may have to scroll down) and, in the second box, check Move It To The Specified Folder.

In the Rule Description box, click the Contains People hyperlink and enter your complete work email address (jdoe@mycompany.com) in the top box of the Select People window. Click the Add button and then the OK button to return to the New Mail Rule screen. Click the Specified hyperlink in the Rule Description box, select the desired subfolder you created, and click OK. You have now created a rule that instructs Outlook Express to examine every incoming message and to automatically move those addressed to jdoe@mycompany.com into the Work subfolder of the Inbox. All other messages will be delivered to the normal Inbox folder.



One of its new features, Outlook Express 6 mirrors your Web-based Hotmail account through a set of duplicate folders.

■ **Return To Sender.** When you configure Outlook Express to receive email from multiple accounts, your return address is automatically established based on the address you entered in the second screen of the Internet Connection Wizard. If you reply to a work-related message, the reply will appear to have come from your company account, and if you reply to a personal message, the reply will appear to have come from your personal account.

Outlook Express is able to determine which return address to use based on the address the message was originally sent to, but what about new messages you create? When you click the Create Mail button, Outlook Express opens the New Message window and automatically places your default account's email address in the From field. To have this message originate from another account, simply click the down arrow at the end of the From box and select an alternate from the drop-down list. For example, if you change the From address to jdoe @mycompany.com, the message you create will be sent through your company's mail server, the recipient will see your work-related display name, and any replies to the message will be returned to your work-related email address.

■ **Drop Shipment.** Outlook Express 6 includes a feature that provides limited access to Hotmail's Web-based email services. At this time, Microsoft offers this feature as a "beta service," and only Hotmail accounts are supported.

To set up a Hotmail account, use the Internet Connection Wizard, as described previously. When you enter your Hotmail address on the second screen and click Next, Outlook Express will automatically fill in the necessary fields of screen three. Accept these defaults by clicking Next and proceed through the rest of the Wizard. After you click the Finish button on the last screen, Outlook Express will create a new folder called Hotmail and ask you if you would like to download folders from the mail server you just added. Click Yes and Outlook will create subfolders identical to those associated to your actual Hotmail account and populate these folders with copies of any messages currently residing on the Hotmail server.

The biggest difference between the way Outlook Express handles an Internet-based email account and a Web-based one is that Internet email is normally moved to your PC and deleted from the server immediately, whereas Web-based email is merely copied to your PC and remains on the Web until explicitly deleted. If you wish to leave a copy of your Internet-based email on the server, you can open the Internet Accounts window, click the Advanced tab, and check the box labeled Leave A Copy Of Messages On Server.

■ **Look Before You Leap.** Configuring Outlook Express 6 to handle multiple email accounts on a variety of server types is relatively easy. The bigger challenge is managing the messages from multiple accounts, especially if you routinely use more than one computer. Invariably, a message that you need to refer to at work will be on your home computer because you decided to check your work email over the weekend. Before you make the decision to set up multiple accounts on the same computer, work out a strategy that ensures better email accessibility. LS

by Dick Archer

Don't Shoot The Messenger

Get The Feel Of NetMeeting & Windows Messenger

With the arrival of Windows XP came Windows Messenger, a communications program that combined the video features of NetMeeting with the popular interface of MSN Instant Messenger. NetMeeting, however, is still the videoconferencing tool of choice for users of earlier Microsoft OSes (operating systems). We'll show you how to improve your messaging experience using either.

■ **NetMeeting.** If you had NetMeeting on a previous version of Windows when you upgraded to WinXP, it should be accessible from the Start button, All Programs, Accessories, and Communications. If your copy of WinXP is not an upgrade, NetMeeting is not readily accessible. To start NetMeeting for the first time, click Start and Run. In the dialog box that appears, type **conf**ig.exe and click OK. NetMeeting will start and walk you through the setup process. You will only need to run config.exe once.

1 **Boost your audio quality.** Tired of choppy audio or echo ruining important meetings? Switching from full- to half-duplex audio can help improve sound quality for you and your NetMeeting participants. **Full-duplex audio** lets signals travel in both directions. **Half-duplex** audio transmits only one signal at a time, like a one-lane street.

Using half-duplex audio will reduce the amount of both bandwidth and processor speed NetMeeting chews up. Half-duplex, however, lets only one person speak at a time, which isn't a problem if you don't like having people talk over you. To enable half-duplex audio, select Options from the Tools menu and click the Audio tab. In the General section, uncheck the box marked Enable Full-Duplex Audio So I Can Speak While Receiving Audio.

If you are still having trouble with an echo, you can run the Audio Tuning Wizard (also in the Options menu) to adjust your volume and microphone settings.

If the sound quality still has room for improvement and your sound card supports it, enable DirectSound on the Audio tab of the Options menu. (*NOTE: Full-duplex sound must be activated to enable DirectSound.*)

2 **Zoom In.** Is the other participant's image often fuzzy? Although the quality of her camera might share some of the blame, bandwidth and processor speed greatly affect NetMeeting image quality.

A large picture and a slow processor will make a slow and choppy combination for video. NetMeeting lets you control the quality of the image you view, to some extent, but unless you and the other participant are using the latest processors, cameras, and fast connections, you can't have it all. Increasing quality in one way might mean sacrificing quality somewhere else.

Slowing down the video feed will increase the quality of the picture you see. Select Options from the Tools menu. On the Video tab is the setting for Video quality. Moving the bar to the right will lower the speed of the incoming video and increase the quality of the picture. The obvious drawback is that you won't be receiving the video as fast as you could, but if the other participant is just a blurry object when set at top speed, it's a small price to pay.

Sending too large an image can also affect the video quality on delivery to the other participant's screen. Choose your preferred image size from the Video tab. The smaller image will be clearer and easier on your processor.

3 **Beef up security.** In a one-on-one conference with video, you can see to whom you are talking. If you aren't using video and want to be certain that the other participant is who she says she is, request a certificate (also known as a digital ID) to settle the issue.

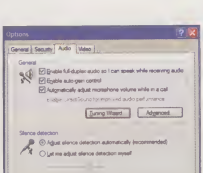
Certificates are issued by certification authorities, such as VeriSign (http://www.verisign.com) to prove you are who you say you are. Individual passwords protect against the certificate's misuse. The other participant can view the certificate and then accept or reject the conference. Most certification authorities will charge you for a digital ID.

4 **Don't get left behind.** Are you using the most current version of NetMeeting (3.01 at press time)? Check for the latest updates and Microsoft Service Packs at http://www.microsoft.com/windows/netmeeting/download. To determine what version of NetMeeting you are running, select Help and About Windows NetMeeting. Your IP (Internet Protocol) address will also be displayed in the bottom left of the About window.

5 **Keep your programs closed.** How many programs you can have open

without causing NetMeeting to lose audio and video quality will depend on the speeds of your processor and Internet connection.

To keep video and audio quality high, close any programs that you aren't currently using. At this time, NetMeeting does not have a feature that displays how much bandwidth it uses. However, you can keep track of your system's processor usage by right-clicking the Taskbar and selecting Task Manager. Click the Performance tab to see how your system is using its resources. The Processes tab will show exactly how much memory each executable program is using. If you see that a program you don't need to have open is hogging processor memory, close it, but not via the Task Manager. Ending a program from the Task Manager can cause the system to be unstable. Find the program in your Taskbar and save any unsaved work before closing it. If the program you want to close is not in the Taskbar, it is probably not a good idea to close it.



Tip 1. Use the Audio panel to adjust features that affect sound quality. Auto-Gain Control and Automatically Adjust Microphone Volume While In A Call are similar features. If the Auto-Gain Control is dimmed, your sound card does not support it.

6 Remote Desktop Sharing. If you are traveling and want to access files or programs on your computer while away, use the RDS (Remote Desktop Sharing) feature. With RDS enabled, you can access your computer, by using a password, from any other computer connected to the Internet. A password-protected screen saver hides your actions from people near the unoccupied computer, giving you privacy while you access a financial program or find an important document.

Unauthorized users shouldn't be able to access your computer using RDS, but you can disable the feature if it makes you feel uncomfortable. Start the RDS Wizard for the first time by selecting Tools, then Remote Desktop Sharing. The Wizard will walk you through enabling and using RDS.

7 Whiteboard Remote Pointer. The Whiteboard, found in the Tools menu, acts as a virtual drawing pad and lets users collaborate on a project. That is, if you can keep the drawing, typing and pasting by other participants organized.

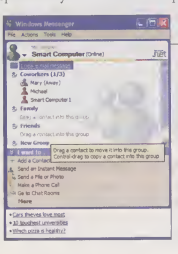
To that end, the Whiteboard includes a Remote Pointer. Enabled under the Whiteboard's View menu, the icon of a hand can be dragged and dropped anywhere on the Whiteboard to catch the attention of other users. The Pointer will remain stationary while you use other tools, such as text.

■ Windows Messenger. Windows Messenger is not available for users of other Windows versions, but it can communicate with MSN Messenger, a similar program run on Windows 95 or later. When you open Windows Messenger from the Programs list, a wizard will prompt you to register a .NET Passport by entering an existing email address (from any provider). If you don't already have an email address, or would like to create a new one to be associated with Windows Messenger, you can create an MSN.com email address at this point in the wizard.

8 A new look. If the background image on Messenger's contact list is not your style, add your own.

With Messenger closed, open My Computer, select your hard drive (most likely C:), open Program Files, and select Messenger. Select the file named Lvback.gif and copy it to a different folder or the Desktop. This lets you retrieve the image if you want to use it again later. Delete Lvback.gif from the Messenger folder.

Select or design a new image and convert it to GIF (Graphics Interchange Format) if it is not already. Use a photo editor to size your new image to 160 x 140 pixels (the size of the original background image). Name the file Lvback.gif and place it in the Messenger folder. Open Messenger and voila! Messenger is now decorated with your personalized background.



Tip 11. Click and drag Contacts to place them in the appropriate Contact groups. The icon next to each Contact name changes to inform you of the user's online status. Teal indicates the user is online. The icon is red if the user is not. The Contact with a clock indicates that the user is online but away from the computer.

9 Hide your tracks. Messenger lets any registered user sign in from any Internet-enabled computer. Once you have signed in, your email address (but not your password) will remain in the drop-down username list.

If you don't feel comfortable leaving your email address visible to strangers using the computer after you, you can remove it from the list. Click Start, Run, and type **control userpasswords2**. When the User Accounts window opens, click the Advanced tab. Click Manage Passwords, highlight your email address, and click Remove. If you logged on through the Guest account, click Manage Your Passwords in the User Accounts window.

Another way to remove your Messenger username is to click Start, Control Panel, and User Accounts. If you are not logged on under Guest, click your username. Under the Related Tasks heading, select Manage My Network Passwords and remove your email address.

10 Emoticons. You can easily add a smiley face to your text in a chat session by selecting one from the Select An Emoticon icon's drop-down menu in the Conversation window. You can also add emoticons to the chat by typing character combinations. For a list of emoticons and their character combinations, see Messenger's Help menu when you're in the Conversation window.

You can also decorate your display name with emoticons. Click Tools and Options. You will be given the option to edit your display name. Insert the emoticon characters anywhere in, or next to, your name and select OK. When you type a chat message, the emoticon will appear.

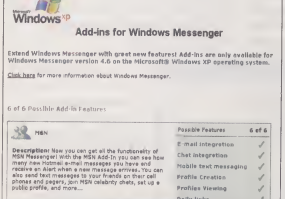
11 Organize your Contacts list. Being the popular Web surfer you are, you've acquired a long list of contacts. To avoid scrolling frantically in search of your friend's screen name, organize your contacts by group.

Click Tools, Sort Contacts By, and Groups. You now have a generic list of contact groups: Coworkers, Family, Friends, and Other Contacts. Assign each contact to a group by dragging it over the appropriate group name. When the group is highlighted, drop the contact into the group. To create a new group name, select Tools and Manage Groups. You will then be given the option to Add, Delete, or Rename A Group. To return to the default contact list assignment, click Tools, Sort Contacts By, and Online/Offline.

12 Blocking Contacts. Throughout your virtual travels, you meet colleagues, friends, and maybe the occasional pest. You already know you can hide your online presence from them by clicking the Block button on the conversation window, but if times change and you make up with your mortal enemy, you can find the list of blocked contacts by selecting Options from the Tools menu and clicking the Privacy tab. Here you can add or remove contacts from the list. You can also find out who has you on their contact list.

13 The lost file. A friend sees that you're online and sends you a message saying she's found your favorite song in MP3 format. She initiates the file transfer and soon the song is on your computer. You start your music player software, go to open the song, and discover that it isn't in your music folder. You don't know where it is.

Click File and Opened Received Files to open the folder into which your file was downloaded. If you would like to have all files that are downloaded through Messenger placed in a particular folder other than the one that is listed, click the Tools menu, Options, and the Preferences tab. The file path for the downloaded file will be displayed at the bottom of the window. Click the Browse button and navigate to the folder you want. Once you have selected the folder, click OK.


Windows XP
Add-ins for Windows Messenger
Extend Windows Messenger with great new features! Add-ins are only available for Windows Messenger version 4.6 on the Microsoft® Windows XP operating system.
Click here for more information about Windows Messenger.
6 of 6 Possible Add-in Features
MSN
Possible Features
6 of 6
E-mail integration
Chat integration
Mobile text messaging
Profile Creation
Profiles Viewing
Daily links
Description: Now you can get all the functionality of MSN Messenger! With the MSN Add-In you can see how many new Hotmail e-mail messages you have and receive an alert when a new message arrives. You can also send text messages to your friends on their cell phones and pagers, join MSN celebrity chats, set up a public profile, and more...
Click here to download this add-in!

Tip 14. Downloading and activating the free MSN Messenger Add-In gives Windows Messenger users some additional features, including email alerts. However, the Add-In is not needed to communicate with MSN Messenger.

14 Add the Add-In. Add-Ins are programs that, true to their name, add features to Messenger. An Add-In that includes several features found on MSN Messenger (a predecessor to Windows Messenger that is compatible with Windows Messenger and can be used on most versions of Windows) can be downloaded by selecting Tools and Add-In Web Site.

The email feature alerts you when an email is received in the inbox of your Hotmail or MSN email account (if you use that email address to log on to Windows Messenger). Clicking the alert will open your email account in a new browser window.

You can also edit your profile on the MSN directory and search the directory for your friends and colleagues. To edit your own profile, Click Tools, Options, then Edit Profile on the Personal tab.

15 On and off. Although multiple Add-Ins can be downloaded and installed, only one of them can be activated on Messenger at a time. This means, for example, that your email notification (courtesy of the MSN Add-In) won't be present while you are using a file-sharing Add-In. To activate or deactivate an Add-In, select Tools and Add-Ins. If you want to remove an Add-In from your computer completely, go to the Control Panel and open Add/Remove Programs. You will find the Add-In there, but not Messenger itself (See "Maddening Messenger" on page 22 to find out how to remove Messenger from your system).

■ **More Than Meets The Eye.** As intuitive as the interfaces of both Messenger and NetMeeting are, many worthwhile features remain hidden in the drop-down menus. Taking the time to explore the advanced features will make the programs more enjoyable and prevent panicked searching through the Help file when a colleague asks to videoconference. LS

by Joshua Gulick

NetMeeting vs. Windows Messenger

The main features that make up NetMeeting and Windows Messenger are remarkably similar, but Microsoft's preference for Messenger as an all-in-one communications tool is clear.

Windows Messenger is easier to find. Click the Start button, then All Programs, and Messenger is already on the list. Windows Messenger appears, whether you want to find it or not, on the Taskbar the first time you launch WinXP. NetMeeting, on the other hand, requires running Config.exe after a new installation.

Even if Windows Messenger didn't have Microsoft rooting for it, the familiar design would be likely to win over WinXP users. Basically the latest version of MSN Instant Messenger, Windows Messenger looks similar to AOL Instant Messenger and ICQ, giving it a familiar interface to most people who chat online. The video and chat boxes are framed in a single window in Windows Messenger. NetMeeting creates separate windows for each, giving NetMeeting a disjointed feel.

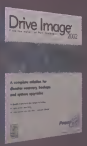
NetMeeting's biggest advantage is its ability to share the Whiteboard among three to eight users. Messenger's Whiteboard must be shared between two users. Because Microsoft is focusing on developing Windows Messenger, NetMeeting may not be able to hold this over Windows Messenger for long. Now that Windows Messenger has arrived with videoconferencing there are even fewer reasons to use NetMeeting.

COMPLETE DISASTER!

TOTAL RECOVERY

Just a moment ago things were going great. Your figures finally added up, that critical report was done and your MP3s were downloaded. That was then. Now you're looking at a blue screen on a dead machine.

But if you had Drive Image™ 2002 you could sit back and relax knowing your entire system - including exact copies of irreplaceable Word™ documents, financials, E-mails, photographs, multimedia, your operating system, programs and preferences - was safely stored, and recovery is just a matter of reload and go!



With an easy-to-use Windows® interface, Drive Image 2002 allows you to quickly make a complete copy of your entire system onto a Zip®, Jaz®, CD-R/W, network drive, disk partition or any other suitable storage device. So, when disaster strikes, all your valuable data is ready and waiting for you to put it right back where you left it.

For hassle-free data and system recovery right now, either visit your local software reseller, go online to www.powerquest.com/smart1 or call 1-888-497-9998 and order Drive Image today.

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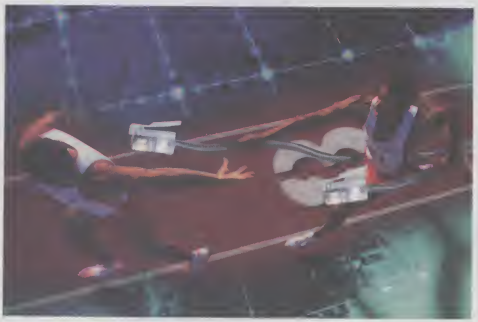
Double Duty

Multilink Modems To Increase Your Connection Speed



If a slow-as-molasses dial-up Internet connection frustrates you but you can't or don't want to upgrade to a cable modem or DSL (Digital Subscriber Line), take heart. You can double the speed of your current dial-up connection through the use of a multilink modem setup.

Unlike many Internet speed-enhancement techniques that employ a software utility to tweak an existing modem or connection, multilinking is a hardware-based solution. It uses multiple dial-up modems that piggyback duplicate Internet connections, one behind the other. The most common configuration (the setup discussed here) involves two modems.

When you access the Internet with two multilinked modems, Windows XP makes the connection twice, once for each modem. Software at the ISP (Internet service provider) level intercepts the data packets heading for your computer and splits them in two. It then sends one partial packet to each of the two modems, which feed the data to WinXP for reassembly. The same thing happens on return trips (such as uploads) from your computer back to the Internet. The Internet feed is then divided between the two modems, letting your computer handle twice the amount of information in the same amount of time. This effectively doubles your Internet connection speed.

Multilinking has been supported in Windows since the release of Windows 98 (Windows 95, if upgraded Dial-up Networking has been installed). It has become easier to accomplish with every successive release of the OS (operating system). According to David McAllister, technical support specialist for Colorado Springs-based ISP City Star, multilinking is a hassle-free process with very few problems, especially for WinXP users. In this article, we will discuss the pros and cons of multilinking and detail the steps involved in configuring and establishing a multilinked Internet connection on your computer.

■ **The Good With The Bad.** As we mentioned above, the really good news about multilinking is that it can double your Internet connection speed with little difficulty. In addition, McAllister says, just about any leading-brand modem will work for WinXP users, and even no-name brands often work just fine. The two modems do not have to be the same brand or type and can be internal, external, or a combination of the two. Both modems should have the same maximum speed, however, or your connection will be limited to double the speed of the slowest modem.

The bad news is that your ISP must support the Multilink PPP (Point-to-Point Protocol) or you won't be able to use this setup. Most ISPs charge a premium for connecting via multilinked modems. Among the companies we checked, the surcharge ranged from $9.95 to $29.95 per extra modem, with the monthly cost for an unlimited, dual-modem connection ranging from $24.90 to $49.95.

You will need two phone lines, as well—one for each modem. For folks with two or more phone lines already, multilinking can be less expensive than a DSL or cable-modem connection. If you do not already have a second phone line, however, the cost can escalate quickly. If you want to use multilinking and need a second line, ask your telephone company what your options are. Some offer limited-access lines, where you are permitted to make a set number of calls per month for a lower fee than a standard line. Remember that you'll be charged FCC (Federal Communications Commission) access charges and possibly tax on top of the base fee. You do not need to tell your telephone company that the line is being used for a multilink setup, and no special software or services are required on the part of the phone company.

■ **Forge A Link.** Before you configure multilink, install the second modem (or have it installed professionally). WinXP supports multiple modems and lets you install both, provided you have sufficient COM (communication) ports. Available COM ports should not be a problem with newer computers. During installation of the second modem, there will be no need (or opportunity) to inform WinXP that multilinking will be used. WinXP's Network Connections utility will handle all aspects of the multilink connection after the second modem has been installed.

Check with your ISP for any special instructions (there may not be any). Ask if any of the default settings of your existing single-line connection, such as the dial-in number or domain server, must be changed before multilinking will work. WinXP will not automatically prompt you to make any changes to your existing configuration, so it is important that you obtain specific directions for any changes that must be made.

Click the Start menu, click Control Panel, choose Network And Internet Connections, and

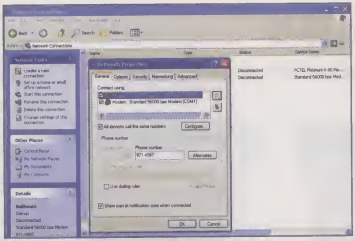
click Network Connections. Click your existing dial-up connection and choose Copy from the File menu to create a duplicate of your existing connection. If you prefer, you can modify your existing connection instead, but we recommend establishing a new connection. This lets you choose a one- or two-line connection at any time.

Rename your new multilink connection and select it (or select your existing one). Choose Change Settings Of This Connection from the Network Tasks menu on the left. Click the General tab and then click the checkbox in front of both modems. Click the box in front of All Devices Call The Same Numbers unless your ISP instructed you to do otherwise. Change the dial-in number if you were so instructed. Click the Networking tab and select Settings. Click the checkbox in front of Negotiate Multilink For Single Link Connections. Make any other changes as per your ISP's instructions.

Click the Options tab to configure the multilink connection. To make both modems active every time this connection is used, select Dial All Devices from the drop-down menu under Multiple Devices. To control how the second modem is used, select Dial Devices Only As Needed and click Configure. You can choose what percentage of capacity (Activity) must be reached and how long that activity level must be sustained (Duration) before the second modem is dialed. Using the same criteria, you can also determine when the second modem should be disconnected. You cannot choose only one criterion or the other, but you can minimize the effect of either Activity or Duration by reducing it to the lowest setting.

WinXP's ICS (Internet Connection Sharing) feature supports multilink connections. If you were using ICS on the single-modem connection you copied, it will also be enabled on the new multilink connection.

After you have completed the changes, right-click the multilink connection in the Network Connections window. If you want to make your multilink connection the primary connection, select Set As Default Connection. To add an icon for the multilink connection to your Desktop, select Create Shortcut.



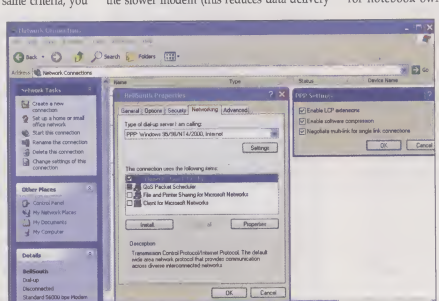
Setting up two modems to make a connection is a matter of checking two boxes under the General tab in the connection's Properties dialog box.

■ **Twice As Nice.** When you connect to the Internet, WinXP will dial (and later disconnect) the multilink connection based on the parameters you have established. If you have instructed WinXP to connect both modems initially, one modem will dial-in and connect first and then the other will follow. Both modems will negotiate the highest reliable data transmission speed. If the two modems connected to the Internet at different speeds, the rate of the faster modem will be lowered to match that of the slower modem (this reduces data delivery problems). Your connection speed will therefore be fixed at exactly twice the speed of the slowest modem. For example, if one modem connects at 44Kbps (kilobits per second) and the other connects at 51Kbps, the speed of the multilink connection will be 88Kbps.

A number of factors, including FCC limitations, line interference, and the number of switches between you and the central telephone office, affect your connection speed. After connection is completed, check your transmission speed by clicking the network status icon (two side-by-side monitors), which is located on the System Tray. Here you can monitor the connection speed of your multilink connection. If your combined connection speed is not at least 80Kbps, press one or both Disconnect buttons and try again. You can also disconnect (and later reconnect) only one modem to gain access to the second phone line.

■ **The Right Choice.** Multilinking is easy, but it can be relatively expensive. Consequently, it isn't for everyone. Computer users in rural locations that do not have access to cable modems or DSL lines are perfect candidates for multilinking, especially if they already have two phone lines.

Multilinking is also a great solution for notebook owners who travel frequently. With multilinking enabled in your notebook and a dual-line, dual-data port connection at your hotel (many hotels now have them), you'll be in business. Even urban residents may find multilinking attractive if they can locate good deals on both phone and ISP service. It's fast, efficient, and flexible, affording you speed when you need it and a spare telephone line when you don't. LS



Multilinking in Windows XP is enabled through the Settings option under the Networking tab located in the Internet connection's Properties dialog box.

by Jennifer Farwell

Share Alike

Network Your Internet Connection

In his 1995 book "The Road Home," Bill Gates wrote, "Eventually, almost every home will have at least one (PC) connected directly to the information highway." Today many homes have two or more computers. Home networking is such a fundamental part of Windows XP that's there's even a wizard to help you set it up.

Unfortunately, the telecommunications industry has not kept pace, and the information highway is riddled with potholes. Even in the United States, many areas still don't have access to broadband connections, such as high-speed DSL (Digital Subscriber Line) or cable services, and Internet users in these areas are limited to 56Kbps (kilobits per second) modems and dial-up connections. For these households or small offices, Microsoft's ICS (Internet Connection Sharing) is a feature worth exploring.

ICS can also be used with a DSL or cable services, but a better strategy for these broadband connections is to purchase an inexpensive router similar to the LinkSys BEFSR41 (http://www.linksys.com). These units sell for less than $100 and provide independent Internet access to each connected PC, as well as limited firewall services.

■ **What Is ICS?** ICS is an application that lets multiple PCs access the Internet through a single point, called a gateway. In the corporate world of WANs (wide-area networks) and sophisticated routers, the use of a common gateway to access remote locations, such as the Internet, has been a standard practice for years. ICS provides this same service for home and small office networks.

■ **Is ICS Right For You?** ICS only benefits those locations where there are two or more computers that require *simultaneous* access to the Internet. If your location has several PCs but only one requires Internet access, there is no reason to install ICS.

In order for several computers to share a single connection, they must all be connected together through a LAN (local-area network). For more information on networking, please see "Network Setup" on page 76.

Also, ICS makes some additional demands on the computer that establishes the connection to the Internet. This PC is called the ICS host because all data to and from the Internet passes through it and it must be turned on and connected to your ISP (Internet service provider) any time any of the computers on your network want to access the Internet. The more computers you have, the more time the telephone line will be tied up and the more important it will be to have a dedicated telephone line for Internet activities.

■ **The Network Setup Wizard.** Microsoft recommends that you use WinXP's Network Setup Wizard to enable ICS on the host computer. The wizard automatically provides all the network settings that are required to share the Internet connection with the other computers. In addition, it offers to create a floppy disk that can be used to set up ICS on the remaining computers in your network. Before using the wizard, you must verify that you can successfully connect to the Internet through your public connection on the ICS host computer.

On the ICS host computer. On the Taskbar, click the Start button, Control Panel, Network And Internet Connections, and Set Up Or Change Your Home Or Small Office Network to start the Network Setup Wizard.

After reviewing the information on the wizard's first screen, click Next twice to begin. On the Select A Connection Method screen, select the option labeled This Computer Connects Directly To The Internet and click Next. On the next screen, select the Internet connection you wish to share (usually your modem connection) and click Next. Enter a description (optional) and a name for your computer. The computer name is used to identify this PC in My Network Places. Click Next to proceed. The Name Your Network screen lets you enter a name for your computer workgroup. Unless you have specific reasons for changing this value, accept the default name of MSHOME by clicking Next twice.

After the wizard applies the settings to your ICS host computer, you are given the option to create a Network Setup Disk. Select the Create A Network Setup Disk option, click Next, select the 3½ Floppy (A:) option, insert a blank floppy diskette into the drive, and click Next twice to copy the necessary software to the floppy. Click Finish to complete the Network Setup Wizard.

On the client computers. With the ICS host computer connected to the Internet, go to each client PC on your network and insert the floppy diskette in the drive. To start the Setup Wizard, click the Start button, click Run, enter **A:\netsetup.exe** in the Open dialog box, and click OK. In addition to applying the proper network configurations, the client

Setup Wizard will install a new device called the Residential Gateway. This device is also known as the Internet Gateway and appears as a small icon in the System Tray. When the wizard finishes and you restart the computer, the client should connect to the Internet through the ICS host automatically.

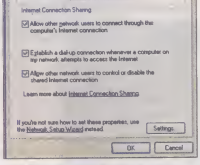
■ **Without The Wizard.** If you prefer, you can make the changes to your computers' configurations manually.

On the ICS host. To share an Internet connection, you must first log on to the WinXP host computer as an Administrator or a user that has been granted administrator capabilities. This is usually the first user you added during the initial WinXP installation.

On the Taskbar, click the Start button, Control Panel, Network And Internet Connections, and Network Connections. Right-click the connection that you want to share (the one that connects to the Internet) and click Properties.

Click the Advanced tab, and check the checkbox next to Allow Other Network Users To Connect Through This Computer's Internet Connection in the Internet Connection Sharing section of the screen. If you are sharing a dial-up connection, you should also check the box labeled Establish A Dial-up Connection Whenever A Computer On My Network Attempts To Access The Internet. This forces the ICS host to automatically dial your ISP whenever a computer on your network requests Internet access.

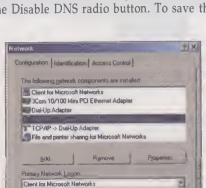
When you click the OK button, you will see a lengthy message that advises you of some changes that are being made to your network settings. Specifically, the ICS host computer's IP address will be set to 192.168.0.1 and the subnet mask will be set to 255.255.255.0. WinXP's networking software uses these parameters to uniquely identify this computer on the LAN; changing them may cause the ICS host to temporarily lose connectivity to your other computers. The connectivity will be restored when you complete the reconfiguration of the other computers.


LanLink Properties
General
Options
Security
Networking
Advanced
Internet Connection Firewall
Protect my computer and network by limiting or preventing access to this computer from the Internet
Learn more about Internet Connection Firewall
Internet Connection Sharing
Allow other network users to connect through the computer's Internet connection
Establish a dial-up connection whenever a computer on my network attempts to access the Internet
Allow other network users to control or disable the shared Internet connection
Learn more about Internet Connection Sharing
If you're not sure how to set these properties, use the Network Setup Wizard instead.
Settings...
OK
Cancel

The Advanced tab of the dial-up connection's Properties dialog box displays the three settings relating to ICS (Internet Connection Sharing). The Network Setup Wizard automatically sets these options.

On the clients. If the client computer runs WinXP (either Home or Professional), log on as an administrator, click the Start button, Control Panel, Network And Internet Connections, and Network Connections. Right-click Local Area Connection and click Properties. On the General tab, select Internet Protocol (TCP/IP in the field), click Obtain An IP Address Automatically, and click OK. In the Local Area Connection Properties dialog box, click OK.

If you are using Windows 98/Me, right-click the Network Neighborhood (My Network Places in WinMe) icon and click Properties. Select the item in the field that matches with TCP/IP *name of NIC (network interface card)* and click the Properties button. On the IP Address tab, click the Obtain An IP Address Automatically radio button. On the WINS Configuration tab, click the Use DHCP For WINS Resolution radio button. On the Gateway tab, remove any installed gateways by selecting them and clicking the Remove button. On the DNS Configuration tab, click the Disable DNS radio button. To save the changes, click the OK button near the bottom of the screen and restart your computer.



To manually configure ICS, you must make some changes to the properties of your PC's TCP/IP-to-NIC connection.

To complete the manual client setup, you must configure Internet options for ICS. Open Internet Explorer, click the Tools menu, and click Internet Options. On the Connections tab, click Never Dial A Connection. On the Connections tab, click Never Dial A Connection and click the LAN Settings button. In the Automatic Configuration section, clear any checks next to Automatically Detect Settings and Use Automatic Configuration labels. In the Proxy Server section, uncheck the Use A Proxy Server option and click OK twice to save the settings.

To use the ICS Discovery and Control feature on Win98/Me computers, Internet Explorer version 5.0 or later must be installed.

■ **Security Alert.** Because your ICS host computer is connected directly to the Internet, we recommend you use firewall software, such as WinXP's built-in ICF (Internet Connection Firewall). For more information about this product, see **"Built-In Watchdog" on page 94**.

The Advanced tab of the dial-up connection's Properties window displays the three settings relating to ICS (Internet Connection Sharing). The Network Setup Wizard automatically sets these options.

To manually configure ICS, you must make some changes to the properties of your PC's TCP/IP-to-NIC connection.

■ **One Size Doesn't Fit All.** ICS, used in conjunction with a dial-up connection, is not meant to be an alternative to DSL or cable service. In many areas of the country, residential DSL service doesn't cost much more than an unlimited-use dial-up account and a dedicated telephone line, and the 256Kbps DSL service is more than five times faster than dial-up. Cable service usually costs more than DSL, but during off-peak hours it can deliver speeds as fast as 3,000Kbps.

■ **If The Shoe Fits.** Microsoft's newest implementation of ICS is easy to install and easy to use. It performs well, and it quickly turns a single telephone line into a multiuser Internet connection while you wait for your local telecommunications company to implement broadband service in your area. LS

by Dick Archer

Built-In Watchdog

Internet Connection Firewall

ICF (Internet Connection Firewall) bundled in Windows XP offers firewall protection for home computers using broadband connections, which are tempting targets for crackers. WinXP's ICF lets users protect themselves from unwanted intrusions without incurring the extra expense of a third-party software or hardware firewall. However, ICF offers only the most rudimentary firewall protection and is not as feature-rich as firewalls from third parties.

This article tells you how to set up, configure, and share ICF. Also, we will compare ICF to other firewalls and discuss the possible pitfalls of running ICF in combination with a hardware or software firewall. Finally, we explore how ICF affects Internet applications, such as messaging and chat, and offer ways to configure ICF to work with these applications.

■ **Firewall Security Heats.** When information is transmitted through the Internet using TCP/IP (Transmission Control Protocol/Internet Protocol), it is divided into packets. Applications, such as those for email, reassemble packets into meaningful information (an email message, for example) when a transmission is received. Think of packets as the most basic particle of information transmitted through the Internet. ICF uses a technique called dynamic packet filtering, which means the contents of every packet are inspected. Also, ICF maintains a log of all outgoing traffic. When a request arrives from outside the firewall, ICF checks its log to verify the request for information came from you. If the request came from you, ICF lets the traffic through; otherwise, ICF drops the request. Unlike other firewalls, ICF does not notify you when it drops a request, so this activity happens in the background. ICF's log file is called Pfirewall.log and is found at C:\WINDOWS\Pfirewall.log.

■ **Find It.** To set up ICF, click Start, Control Panel, Network and Internet Connections, and Network Connections. Highlight the connection you want to protect and click Change Settings Of This Connection under the Network Tasks menu on the left (or right-click the connection and click Properties). In the Properties window, click the Advanced tab and checkmark the Protect My Computer And Network checkbox. Click OK to enable ICF.

■ **Configure ICF.** As firewalls go, ICF sports a basic set of features. ICF's primary approach is to not let any outside traffic get through that is not a response to a request from inside your computer. This approach works great for simple Web browsing and email but interferes with applications that generate unsolicited requests, such as instant messaging. For example, ICF's default settings do not automatically let an instant messaging client communicate with your internal client to verify whether you are online.

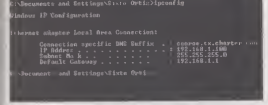
Fortunately, ICF is easy to configure. Go to the Properties window for your Internet connection. Click the Advanced tab and click Settings to launch the Advanced Settings window. This Window features three tabs: Services, Security Logging, and ICMP (Internet Control Message Protocol).

At your service. The Services tab lists protocols that accept incoming requests from the Internet. For example, if you wish to set up an FTP (File Transfer Protocol) server on the computer running ICF, you must tell ICF that unsolicited incoming FTP requests are allowed. Check the FTP Server checkbox to let those requests through.

To configure an unlisted service a particular application (for example, AOL Instant Messenger) uses, click the Add button to launch the Service Settings window. Give the service a name, type your computer's IP (Internet Protocol) address or name, and provide the service's external and internal UDP (User Datagram Protocol) and TCP (Transmission Control Protocol) port numbers. The external and internal port numbers are usually the same; consult the Help documentation or the Microsoft Web site to obtain the port numbers the application that uses the unlisted service needs to communicate with your computer.

For example, Microsoft Knowledge Base Article Q307554 specifies that AOL Instant Messenger needs TCP ports 443 or 563 open in order to function properly. (For a list of port numbers, go to http://support.microsoft.com and type Q307554 in the Search field.) Use the Edit button to make changes to a service that is already configured.

Captain's log. The Security Logging tab lets you configure ICF's logging capabilities.


Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.
C:\Documents and Settings\Orti>ipconfig
Windows IP Configuration
Ethernet adapter Local Area Connection:
Connection-specific DNS Suffix . : rochester.rr.com
IP Address. . . . . : 192.168.1.100
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 192.168.1.1
C:\Documents and Settings\Orti>

Other than showing you the IP (Internet Protocol) address, the IP Configuration command displays DNS (Domain Name System), Subnet Mask, and Gateway information for your network.

Two Logging Options are available: Log Dropped Packets and Log Successful Connections. By default, ICF uses a file called Pfirewall.log, stored by default in C:\WINDOWS; click the Browse button to chose a different location for the file, if you choose. Also, the size of the log file is customizable using the Size Limit field. If hard disk space is at a premium, you want to minimize the size of the log file. Plus, a huge log file contains a lot of information to sift through.

Send a message. ICMP is a set of messages that computers in a network use to exchange information, such as error and flow-control messages. Click the ICMP tab. If you select the Allow Incoming Echo Request checkbox, for example, ICF lets your computer repeat a message back to its sender. If you are using PING (Packet Internet Groper) to troubleshoot communications in your network, you must configure ICF to accept incoming echo requests.

■ **The Tale Of The Tape.** ICF does not restrict outgoing traffic. So if your computer becomes infected with a Trojan horse that communicates to a server on the Internet, ICF is powerless to protect you. Other firewalls in the marketplace, such as Zone Alarm (http://www.zonelabs.com), are designed to monitor inbound and outbound communications. Other firewalls are often bundled with related security and privacy features. For example, Zone Alarm Pro includes software for scanning inbound email messages, ad blocking, cookie management, and restriction of script programs.

ICF's logging capabilities are limited. The log file ICF generates is a bare-bones document showing communications data, such as the date and time a communication occurred, the type of action taken, and the protocol involved.

Other firewall programs launch a warning window whenever they detect suspicious inbound communications. ICF works silently in the background and issues no warning when it drops a suspicious message. To obtain information about the types of traffic the firewall is filtering, you must access the log.

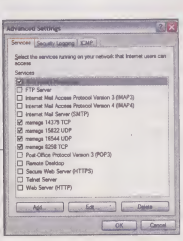
■ **Other Factors.** We ran WinXP Home Edition's ICF in tandem with Zone Alarm Pro and a Linksys hardware gateway on a single computer and experienced no problems using basic Web browsing and email.

ICF can interfere with VPNs (Virtual Private Networks). Also, ICF closes all ports TCP/IP file and printer sharing needs.

ICS (Internet Connection Sharing) is designed to help you share a single broadband connection among multiple computers. Typically, ICS is enabled in a host computer that is connected to your DSL (Digital Subscriber Line) or cable modem. Other computers in your network are not directly connected to the Internet, and use ICS to connect. Do not use ICF on client PCs connected to an ICS-enabled host; however, it's a good idea to enable ICF on the host computer.

■ **ICF Will Play Nice.** For those who use the Internet for just email and Web browsing, ICF is an adequate firewall. However, if you use other Internet communications programs, you must configure ICF to let inbound traffic into the data ports those applications use.

For example, if you use AOL Instant Messenger, you must configure ICF to let inbound traffic through TCP ports 443 or 563. To do this, click Start, Control Panel, Network and Internet Connections, and Network Connections. Highlight the ICF-protected connection in the Network Connections window and either click Change Settings Of This Connection on the left side of the window or right-click the highlighted connection and click Properties. Click the Advanced tab and then Settings to launch ICF's Advanced Settings window. Click Add to launch the Service Settings window.



In Advanced Settings, you select the services from which you want to accept inbound, unsolicited communications.

Type a name for the service in the Description Of Service text box. In the Name Or IP Address field, enter your computer's IP address or its workgroup or domain name. To obtain your computer's IP address, click Start, click Run, and enter cmd in the Open textbox to launch a command window. Type ipconfig at the command line and press ENTER. Ipconfig displays information about your Windows IP configuration, including your computer's IP address.

To obtain your computer's name, right-click My Computer, click Properties, and click the Computer Name tab. This window displays your computer's workgroup and the full name of the computer.

Enter the port numbers the application needs into the External (Internal) Port Number For This Service text boxes. These numbers are the same for both internal and external. Finally, select either the TCP or UDP checkbox to indicate the type of port. To configure AOL Instant Messenger, for example, enter 443 or 563 for the port numbers, and select the TCP checkbox. (Port numbers come from the Microsoft Knowledge Base article mentioned earlier in this article.)

If the port number you entered is already in use, ICF opens a window warning you of that fact. Most applications are configured to use more than one port, so if this happens, enter the other available port number. Click OK to accept your changes. Your configured service is now listed in the Services window, and its checkbox is selected to indicate that ICF lets the service communicate with your computer. Click OK and OK again to exit.

■ **Intruders, Be Gone.** As firewalls go, ICF is a simple application. A multitude of other firewalls do what ICF does and more. Many third-party firewall manufacturers bundle other versatile security and privacy-protection features.

However, if you want simple protection and don't want to pay extra for it, ICF does an adequate job of protecting your WinXP computer from unwanted intrusions. LS

by Sixto Ortiz Jr.

Delivery Decisions

Configure Outlook Express To Work The Way You Do

Outlook Express might be the most used application on your Desktop. You spend hours on it every week, yet ironically you only spent two minutes configuring it. After entering the vitals needed to send and receive mail, you let Microsoft take over. Why give the software giant so much authority? Microsoft doesn't know how you work.

It's time to take your mailbox back. With OE's numerous customization tools, you can make it yours. Change the view, add accessible icons, write your message on stationery, include a signature, send mail immediately, or queue it. What's right for you? That all depends on your security concerns, your Internet connection, and most importantly, on how you like to write and read email.

1 Send mail. Write an email message, click Send, and OE delivers your message immediately. This default setting works fine if you're one of those flawless people who writes messages perfectly the first time, every time. Unfortunately, the rest of us in the digital world make mistakes.

Queue email messages in your Outbox to give yourself a chance to go back and proofread them every time you click Send. To force OE to place Send messages in your Outbox, select Tools and then Options. Click the Send tab and uncheck the box Send Messages Immediately. You'll also want to click the General tab and uncheck Send And Receive Messages At Startup. This will prevent messages sitting in your Outbox from automatically being sent when you launch OE.

If you want to queue only specific messages, keep the Send Messages Immediately default settings in the Send tab, and when you write a message, select File and then Send Later to put it in the Outbox. If you've configured more than one mail account, you'll see a Send Later Using option from which you can choose the account from which you want to send.

When you've checked all the messages in your Outbox and they're ready to go, click the Send/Recv button, or press CTRL-M. This will send all queued mail and retrieve any mail sitting on your mail server.

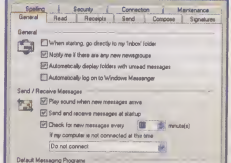
2 Check mail. Out of the box, OE is set to check for new mail every 30 minutes. If you receive lots of messages and need to know even sooner, head back to the aforementioned General tab under Options and lower the interval for Check For New Messages Every (X) Minutes. Be wary. Needless checking of email can place an unnecessary load on your mail server.

If you don't want OE to automatically check email, uncheck this option. Instead, you can click Send/Recv to manually check mail. You can also click the button's drop-down arrow and select Receive All to receive messages without sending.

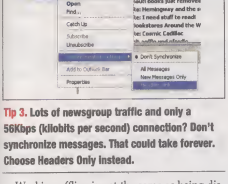
Just because people aren't responding to your mail doesn't mean they're not reading it. You can ask that a receipt be returned when your recipient opens the message. In the Options window, select the Receipts tab and check Request A Read Receipt For All Sent Messages. This is not 100% foolproof. Both you and your recipient can choose not to return a receipt by selecting the options Never Send A Receipt or Notify Me For Each Read Receipt Request.

3 Work Offline. No matter what auto send or receive options you've set, OE can suspend all connection duties if you toggle on the Work Offline mode under the File menu.

Turning on Work Offline is useful if you have a costly dial-up connection or if you're using a notebook away from your Internet connection. Any send or receive commands can and will be delivered once you deselect Work Offline under the File menu.



Tip 2. Learn to love the Options dialog box. You can change most mailbox options here. For example, lower the number of minutes between each check so Outlook Express will automatically download incoming mail more frequently.



Tip 3. Lots of newsgroup traffic and only a 56Kbps (kilobits per second) connection? Don't synchronize messages. That could take forever. Choose Headers Only instead.

Working offline is not the same as being disconnected. If you're disconnected, OE will try to reconnect you. OE won't if you're working offline, although Work Offline can be overridden if you click the Tools menu, click Options, click the General tab, and select Connect Even Working Offline from the If My Computer Is Not Connected At This Time drop-down menu.

If you have multiple mail and news accounts, you'll want to synchronize them before you work offline. Select Tools and then Synchronize All. Doing so will bring all mail and newsgroups you specify onto your hard drive for offline viewing. By default, all mail accounts you create are set to be synchronized; newsgroups aren't. To synchronize a newsgroup, right-click the group and select one of three options: All Messages, New Messages Only, or Headers Only. Be wary of selecting All Messages or New Messages. If the newsgroup gets lots of traffic and messages are large, downloading newsgroup messages could fill up your hard drive.

4 More room. Not all the information on the screen is important to you, nor is it necessarily in the place where you want it. It doesn't have to stay that way.

First, click View and then Layout. You'll see a list of components with checkboxes. Check off the ones you don't want. If you have a 15-inch monitor and you're trying to maximize screen real estate, you may want to eliminate the Folder Bar, which tells you the active folder that you see if you have the Folder List on the left. You can also deselect the Status Bar, which tells you if you're online, or offline, sending messages or if there are any errors.

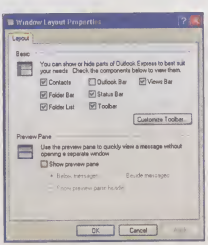
Now click the Customize Toolbar button. Shrink the size of the buttons and remove the redundant text labels to give yourself even more screen space. Select Small Icons from the Icon Options drop-down box and No Text Labels from the Text Options drop-down box.

You can add and remove buttons here as you see fit. For example, add the Folder List and Preview Pane buttons, which let you toggle those windows on and off, for more screen space. You can highlight a specific icon on the right and use the Move Up and Move Down buttons to rearrange buttons. When you're done, click Close.

Before you jump out of the Layout window, there's one last option: to remove or move the Preview window. For security reasons, you may want to disable this. HTML (Hypertext Markup Language)-formatted email can include active programs. Although rare, these programs can be malicious. Viruses via HTML messages are different from those via plain-text messages.

A plain text message that carries a virus can only be activated if the attachment is launched. With an HTML-formatted email, just viewing the message can activate a virus. To prevent auto-previewing, check off Show Preview Pane and click OK. In case you choose to toggle the Preview Pane in the future, go back to the Read tab under Options and deselect the option Automatically Download Message When Viewing In The Preview Pane. Click OK.

You can add additional columns to your message list, such as File Size and Account, which is useful if you've configured OE to handle multiple accounts. Click View and Columns. Check the box next to the columns you want shown. Click OK. Once the column is available, you can move the cursor between the headers and drag the dividers to change its width.



Tip 4. Give yourself more screen space. Uncheck Folder Bar and Status Bar. Deselect the Preview Pane to prevent malicious worms from auto-entry into your system.

5 Stay plain. Not everybody uses a full-featured email application to read and write email messages. As a result, HTML-formatted email messages that you send with fonts, colors, and pictures arrive in their email box looking like garbage. If you get lots of messages from friends asking what you just sent, or the replied text comes back with a mess of HTML code, you'll probably want to switch your default message-writing format to plain text. Plain text is the common denominator all email applications can read.

Click the Send tab in Options and choose the Plain Text radio button under Mail Sending Format. If you want, you can click Plain Text Settings and change the width you want to wrap text, Click OK to save and close the windows.

If you don't want to make plain text the default, you can select Format and then Plain Text within the message window to convert any specific message to plain text.

6 Sign your email. Every one of your email messages includes a little something of you, your email address. But there are more ways to contact you than just your email address. You have a phone number, a mailing address, and a Web site. You can have OE automatically sign your email with all that information and more. If you want, you can have different signatures associated with different accounts.

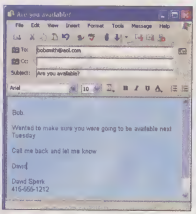
Under the Options Menu, select the Signatures tab. Click New and enter your signature in the box. If you want to associate it with individual accounts, click Advanced and put checks by the mail and news accounts you want to apply the signature. Click OK. Repeat the process for as many signatures as you like. At the top, click the box Add Signatures To All Outgoing Messages and deselect the box Don't Add Signatures To Replies And Forwards. That will ensure that your signature appears on all your correspondence.

If you want to add a specific signature, you can always select Insert and Signature and then choose the signature you want to use to do so at the message level.

7 Attach your business card. Signatures are great, but for a recipient to use the information, she has to manually enter it into her contact manager. Include an

electronic business card, or vCard, to make adding contact information a one-click process.

To begin, create a contact entry for yourself in your Address Book. Go to the Tools menu and select Address Book. In the Address Book window, click File and select New Contact. Enter all the pertinent information, switching throughout all the tabs, and click OK. Now go back to the Options window and click the Compose tab. In the Business Cards section, check the box next to Mail and then select your name from the drop-down list. Click OK. From now on, your business card will be attached to every message you compose. To remove it from any specific email, select Insert and then toggle off My Business Card.



Tip 8. Use stationery, a business card, and signature to customize your email.

8 Stationery. Not every email message has to be black text on a white background. You can send messages on stationery.

OE comes with a few designs. Back in the Compose tab of the Options window, check the box next to Mail in the Stationery section and click Select. Choose from one of more than 20 stationery samples. You'll see samples appear in the Preview window. Click OK after you find the one you like. If you want more stationery, click Download More in the Compose tab, and you'll be sent to Microsoft's site where it has dozens more stationery to grab. If you choose to download stationery from other sites, make sure you install the stationery in the folder PROGRAM FILES \COMMON FILES\MICROSOFT SHARED \STATIONERY.

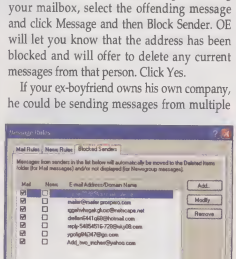
Your chosen stationery will be the default background for all your email. You can change that for any specific message by selecting Format, then Apply Stationery and then choosing No Stationery or different stationery. (*NOTE: Email messages with stationery are HTML formatted and viewable depending on your recipient's email client.*)

9 Weed out addresses. Every time you reply to someone new, OE will automatically include that name and address in your Address Book without a prompt. If your friends send mail using different email addresses and you reply to people you don't want in your Address Book, you'll soon have an Address Book full with duplicates and names you don't want. To turn that function off, go to the Send tab in the Options window and deselect Automatically Put People I Reply To In My Address Book.

Like OE? Then you'll love Windows Messenger. Don't love Messenger? Strange, Microsoft thought you would. The software giant was so convinced you'd like its instant messenger product that you're forced to start it when you launch OE. As long as you have OE open, you can't shut Messenger down. To prevent Messenger's forced entry, switch to the General tab of the Options window and check off Automatically Log On To Windows Messenger. Click OK.

10 Keep out! Not all the mail that appears in your Inbox is wanted. Some arrives from an ex-boyfriend or someone offering you the lowest home mortgage possible. If you don't want those messages invading your mailbox, select the offending message and click Message and then Block Sender. OE will let you know that the address has been blocked and will offer to delete any current messages from that person. Click Yes.

If your ex-boyfriend owns his own company, he could be sending messages from multiple addresses under the same domain. In those cases, you need to block the whole domain. Click Tools, then Message Rules, and then Blocked Senders List. Click Add and type just his domain (such as freejunkmail.com). Click OK. If you ever get back together with your boyfriend, you can remove him from the blocked list. Select his address or domain and click Remove. Click OK.



Tip 10. Identify those uninvited clowns that keep filling your mailbox and block their messages. This helps control spam. If you have a change of heart, select the address and click Remove.

11 Antivirus and OE. Don't use OE without an antivirus program. We highly recommend that you use a program such as Norton AntiVirus (http://www.norton.com) or McAfee VirusScan (http://www.mcafee-at-home.com) to scan all incoming and outgoing messages. If for some reason you don't, you can take some steps to minimize the potential of viruses and worms infecting your mailbox and your computer.

First, turn off the Preview Mode as mentioned earlier. Next, click the Security tab of the Options window and select Restricted Sites Zone. This will prevent active content, such as ActiveX scripts, from running inside HTML-formatted email. You'll also want to check the box Do Not Allow Attachments To Be Saved Or Opened That Could Potentially Be A Virus.

You then have to update your Internet security settings. That has to be done outside OE. Click the Start button, Control Panel, Network And Internet Connections, and Internet Options. Select the Security tab and move the security settings to High. That's secure, but not secure enough. Click the Custom Level button and scroll down and select the Disable radio button for the options Script ActiveX Controls Marked Safe For Scripting and Active Scripting. Click OK to close out both windows.

These final steps will further limit the activation of programs within HTML-formatted email and pages through your browser, thus greatly reducing the functionality of your Web browser and mailbox. To get those capabilities back, purchase and install an antivirus program.

■ **But Wait, There's More.** OE has tons more options. We've only looked at the most popular ones. Explore more of the settings under the Options window. You don't ever have to settle on one setting. Just like the mail that comes in and out always changes, so can your mailbox's look. Let OE change as you change. LS

by David Spark

A Little Bit Faster Now

Squeeze The Most Out Of Your Dial-Up Connection

In the early days of television, everyone's favorite uncle, Milton Berle, would shout "Makeup!" and in response, he'd get a smack in the face with a giant powder puff. Berle repeated that joke hundreds of times. It never changed.

Why can't connecting to the Internet via a dial-up modem be as reliable as Uncle Miltie's "Makeup!" gag? You shout, "Connect," and who knows what will happen? Will you log on in 10 seconds or two minutes? Will your modem complete the call? Will you connect at 56Kbps (kilobits per second) or 33.6Kbps? If you do complete the call, how long will the connection last?

Stop smacking yourself in the head with a powder puff. It's not your fault. Windows XP's default communications settings are not optimized for a dial-up connection. You need to make some changes. Read on to find out how.

1 Shifting speeds. If your modem reports a completely different speed every time you log on, it's possible you are getting a different speed every time you log on. But, it's also possible that your modem's reporting your speed incorrectly. To get an accurate assessment of your downstream connection, try an online speed test, such as the one at Bandwidthplace (http://bandwidthplace.com/speedtest). To assure a consistent connection, run the test multiple times using different dial-in numbers, different phone cords, and different connections in your house. Refer back to this site as you make more tweaks to your modem configuration.

2 Get on faster. If your computer or modem processes an unnecessary task, it extends the time of your login. To log on faster and maintain a solid connection, remove all unnecessary networking protocols.

Click Start, Control Panel, Network And Internet Connections, and Network Connections. You'll see the dial-up connection you created. Right-click and select Properties. Select the Networking tab, and you'll see a list of items being the connection is using. Deselect all but the Internet Protocol (TCP/IP).

Unless your ISP (Internet service provider) has told you otherwise, you should be connecting via the PPP (Point-to-Point Protocol): Windows 95/98/NT/2000, Internet dial-up server. Click the Settings button and make sure Enable LCP extensions is checked. The LCP (Link Control Protocol) extensions completely manage your PPP connection from sign-on to sign-off. Click OK. If the server you connect to uses older PPP software, you may have a problem and need to come back and check Enable LCP extensions off.

3 Differing speeds. If port speed is set to 115,200bps (bits per second) but you only have a 56,000bps modem, your modem will not be confused by this difference in speed. 115,200 is your COM port speed. The bps rate has to do with the speed that data can move through your UART (Universal Asynchronous Receiver/Transmitter) chip. The chip acts as a gateway between your PC and your dial-up modem. If this is set too low, bytes can't be processed fast enough before the next one arrives. Better known as UART overrun, this bottleneck will result in a slower connection speed.

If you have a 56Kbps modem, make sure that maximum port speed is set to 115,200bps. Return to the Properties window of your dial-up connection. Under the General tab, click the Configure button. There you'll see a drop-down list for you to set the port speed. Set it to 115,200 and make sure Enable Hardware Flow Control is checked. Hardware flow control will take some of the load off the PC's processor and improve overall speed and connection stability. Click OK.

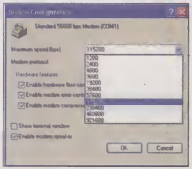
4 Error control and compression. Fast data isn't helpful if it's all garbage. Error-laden data results in noise. Noisy digital data translates to static. If you are listening to an audio file online, you can sometimes hear it. Keep it clean: Turn error control on.

Speed is a function of your data connection and your PC. What may appear to be a slow connection may actually just be a slow PC trying to process the data that's being transferred. If you're not using modem compression, you're enabling software compression, which

uses up processing cycles of your CPU.

To change both variables, go back to General tab and click Configure. Select Enable Modem Error Control and Enable Modem Compression. Click OK.

Now go back to the Networking tab of your dial-up connection properties window and click the Settings button. Uncheck the box next to Enable Software Compression. Click OK. Unless you have a winmodem, which has no built-in modem compression, a switch to modem compression will take some of the pressure off your processor, giving you better overall performance.



Tip 3. It's not your modem speed; it's your COM port speed. Set it high to avoid any possible bottlenecks.

5 Bypass the default. The default TCP/IP settings are not the best settings for a dial-up connection. To initiate a TCP connection, the sending and receiving computer must agree on how the data will be transferred in packets. WinXP's default settings are not appropriate for a dial-up connection because they cause increased negotiations that eat up precious bandwidth.

Before data can be sent, the sender and receiver must agree upon packet size. This number represents the MTU (Maximum Transmission Unit). Some routers that lie in the path to the destination, however, can't handle packets as large as the agreed-upon MTU. When packets hit a router constriction, data becomes fragmented. The receiver must then acknowledge each of these new fragments. This wastes valuable throughput time. WinXP's default MTU setting is 1,500 bytes. Many Internet routers can only handle 576 bytes. To minimize negotiations, set the MTU to the lowest common denominator, 576 bytes.

The next setting you want to alter is the RWIN (Receive Window). That's the maximum number of bytes of data that can be buffered as the sender waits to receive acknowledgement that data sent has been received. RWIN can store packets of data before an acknowledgement is sent back. Problem is, if there's an error and you don't find out about it until two dozen packets have been sent, all those packets have to be re-sent.

A good RWIN size is an even multiple of the MSS (Maximum Segment Size), which is the same as the MTU minus its 40-byte header. If you set your MTU to 576, your MSS would be 536 (576 - 40). The RWIN's default value in XP is 17,520 bytes, which is far too high for dial-up. Try bringing it down to four, six, or eight times the MSS (2144, 3216, or 4288, for example).

You can go through the laborious and dangerous process of hacking the Registry to change all these settings. The other option is to download a freeware utility that will simplify the process. Head to Catalyst and download and install the company's free Dial-Up Networking Configuration Tool (http://www.catalyst.com/download/utilities.html). Enter the values suggested above for MTU and RWIN. You'll probably need to try different RWIN settings. The TTL box stands for Time To Live. The TTL number refers to the maximum number of hops a packet will make through routers to get to its destination before it gives up. WinXP's default value is 128, and that's perfectly fine. The problem is that this configuration utility defaults to a much lower number, so you'll have to manually enter 128 to maintain WinXP's default value.

6 Stable connection. Very few things are as frustrating as being disconnected during a download, or any time, frankly. If you have call waiting, make sure it's turned off. Under the General tab of the Dial-Up Connection properties, enter *70 in front of your phone number. If that doesn't fix your problems, you may need to scale back on all the speed adjusting you've been doing.

You can try turning off compression and error correction. The other option is to decrease the number of buffers on the UART chip. Click Start, Control Panel, Network And Internet Connections, and Phone And Modem Options at the left of the screen. Select the Modems tab, choose your modem, and click the Properties button. Click the Advanced tab, and for most modems, you'll see a button for Advanced Port Settings. If you do, click it, and you will see sliders for adjusting buffers. Lower the sliders to improve your connection. Bring it down one notch, and then test. Repeat until the connection improves. If that doesn't work, click the Modem tab and slow the port speed below 115,200 bytes.

7 Online gaming. It is possible to play a fast-paced network game, such as Quake, via a dial-up modem, but you'll have to do lots and lots of tweaking. Connection demands for twitch-response games are very different than standard Internet usage.

Internet users downloading Web pages and files want to maximize throughput. Gamers want quick response time. If you press the fire button, and the game doesn't register your input until 300 milliseconds from now, you could be dead. This delay time is known as lag. Gamers want to reduce lag. Because the amount of data being sent during gaming is small, throughput is not as important.

Many of the techniques used to improve the quality of your connection can also improve lag time. Chances are that limiting your connection speed, lowering the port speed, for instance, will be the factor that most improves your lag time. You'll have to play around and test, but you won't be able to eyeball the results. You will need to ping your game server to see if the changes you make improve your response time. To do that, first download and install a ping program, such as WinPing (http://www.codeproject.com/internet/winping.asp). Every time you make a tweak, enter the game server's address and test your ping time. Repeat the ping test multiple times to make sure no one test is a fluke. This will take some time, but be patient. Remember, it's a matter of life and death.

■ The Best With What You Have. Unfortunately, connection speed is something that's not always in your control. Outside WinXP, the behavior of your ISP and the Internet will have profound effects on your connection. If your ISP loads up users on a single line or server or there's a surge of Internet traffic, your performance will drop.

You can't always eyeball throughput. For every change you make, run a bandwidth test. Remember to do it multiple times. Make all the right tweaks, and you'll be able to count on a solid connection every time you dial in, just as Milton Berle could always count on a laugh every time he yelled, "Makeup!" LS

by David Spark

Net Worth

Tweak Windows XP & Get The Most Out Of Your Network

With each Windows release, Microsoft continues to enhance the networking features and capabilities for its flagship OS (operating system). Windows XP Home and Professional are both extremely networking-savvy OSes able to easily connect to an infinite variety of networking configurations from simple, home-based peer-to-peer networks to the most sophisticated client/server corporate networks.

WinXP's default settings, especially for connecting to a home network or broadband connection, typically deliver acceptable performance. However, as with previous Windows editions, these default settings are not necessarily the optimal ones for delivering top performance. If you demand top performance from your WinXP system and are not afraid to get under the hood, read on for some tips and tweaks designed to optimize WinXP's networking performance.

(*NOTE: Some of these tips and tweaks require digging into the Windows Registry. Incorrectly modifying the Registry can have adverse effects on your system, up to and including rendering your computer unbootable. Always back up the Registry before making any modifications. See "Protect Yourself" on page 32.*)

1 Flexible connectivity. A mobile environment often requires the ability to switch between networked computer environments. For example, if you use your work notebook in your home office, it's frustrating to constantly have to remember complicated network settings.

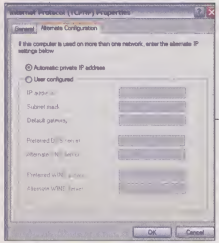
WinXP solves this problem by letting you configure alternate TCP/IP (Transmission Control Protocol/Internet Protocol) configurations. If WinXP connects to a network but cannot find a DHCP (Dynamic Host Control Protocol) server, it automatically defaults to an alternative configuration. So, you can set up your home office's simple network settings as your alternative configuration, letting you bring your notebook into your home network environment without having to fiddle with your TCP/IP settings.

To create an alternate TCP/IP configuration, click Start, Control Panel, Network And Internet Connections, and Network Connections. Keep in mind you must be logged on with administrator privileges to create your alternative configuration. Highlight the connection you want to configure, right-click it, and click Properties. In the General tab of the Connection Properties window, highlight Internet Protocol (TCP/IP) and click the Properties button. In the Internet Protocol (TCP/IP) Properties window, click the Alternate Configuration tab and enter the settings for your alternate connection. Settings you need include the IP address, subnet mask, default gateway, and preferred and alternate DNS (Domain Name Server) and WINS (Windows Internet Naming Service) server.

2 Go wireless. Wireless connectivity lets you log on to a network and access resources, such as Internet connectivity, email, or file servers, without the need for a wired connection. The architects of WinXP were definitely thinking about mobile professionals who demand wireless access because they built in the ability to configure this access into the OS.

As with wired networks, everyone wants automated, seamless connectivity. In WinXP, you can configure a list of preferred wireless networks, along with their settings and the preferential order in which you want WinXP to seek them out. To configure your wireless network access, launch Network Connections, right-click the Wireless Network Connection, and click Properties. In the Wireless Network Connection Properties window, click the Wireless Networks tab and make sure the Use Windows To Configure My Wireless Network Settings checkbox is selected.

In the Wireless Network Connection Properties tab, you see two options that you can configure: Available Networks and Preferred Networks. The Available Networks option group shows a list of networks available for WinXP to connect to. A network is



Use the Alternate Configuration tab in the TCP/IP Properties window to enter the details for an alternate connection. If you don't, Windows XP uses a range of automatic private IP (Internet Protocol) addresses to determine the optimal networking configuration when a DHCP (Dynamic Host Configuration Protocol) server is not found.

available whenever your wireless network card detects it.

If you want to connect to an available network, click the Configure button. WinXP takes care of the configuration details and connects to the network. This capability is especially handy for road warriors who use publicly available wireless access, such as the networks that are springing up in airport terminals, hotels, and coffee houses. As long as your network card detects the network, you are able to easily connect to it via the Available Networks.

WinXP also lets you configure a set of Preferred Networks. These are wireless networks that you frequently use; for example, if your company uses a wireless network, WinXP lets you set it up in your Preferred Networks list.

To enter a Preferred Network info the list, click the Add button under the Preferred Networks option group. This launches the Wireless Network Properties window, where you enter a name for the network and the necessary network settings. Once you collect a list of Preferred Networks, use the Move Up and Move Down buttons to set the order in which you want WinXP to attempt a connection. For example, place your wireless workplace connection first and the wireless connection at your favorite hotel second. If you want WinXP to automatically connect to a nonpreferred network if one becomes available, click the Advanced button and make sure the Automatically Connect To Non-Preferred Networks checkbox is selected.

3 I want my NetBEUI! For some inscrutable reason, Microsoft discontinued support for the NetBEUI (NetBIOS Extended User Interface) protocol in WinXP. NetBEUI is a networking protocol commonly used in LANs (local-area networks), so the lack of support in WinXP can be an inconvenience if you want to use NetBEUI for your LAN protocol. If you want NetBEUI, don't panic just yet; installing it is very easy. Microsoft just buried the necessary files in the WinXP installation CD.

To install NetBEUI, insert your WinXP installation CD and open the VALUE ADD\MSFT\NET\NETBEUI folder. Copy the Nbf.sys file found in this folder into the C:\WINDOWS\SYSTEM32\DRIVERS directory. Next, copy the Netnbf.inf file from the CD into C:\WINDOWS\INF. Keep in mind, WinXP hides the C:\WINDOWS\INF folder by default. To reveal the folder, launch Windows Explorer, click Tools, Folder Options, and click the View tab. Under Advanced Settings, select Show Hidden Files And Folders under the Hidden Files And Folders folder. Click OK to accept changes.

Now that all the NetBEUI files are inside the proper folder, launch Network Connections and right-click the connection that you want to configure. Click Properties and, in the Connection Properties window, click the General tab. In the General tab, click the Install button, click Protocol, and click the Add button. NetBEUI Protocol should be one of the items on the list of selectable protocols. Click its name to select it and click OK to install it. Follow the instructions and restart your computer when prompted to do so. NetBEUI is now part of your WinXP configuration.

4 Jettison unneeded baggage. One of the secrets to successful networking is configuring your connections to only run the services and protocols needed for your particular computing environment. Any installed and unused extra services can hamper your computer's networking performance.

An example of this is the presence of QoS (Quality of Service) RSVP (Resource Reservation Protocol) in WinXP Pro. QoS is a technology that lets a network prioritize different types of traffic, thus letting network operators optimize network parameters, such as bandwidth and latency, according to the priority or importance of network traffic.

RSVP is the networking protocol that implements QoS capabilities in WinXP Pro. For example, email traffic, which does not need stringent bandwidth and latency requirements, does not receive the same priority in a QoS-enabled network as voice and video traffic, which have stringent bandwidth and latency requirements. QoS guarantees networking resources are available in sufficient quantity and quality to reliably run certain applications and services.

However, QoS is a technology only seen in sophisticated corporate networks. If you are a home or small business user and you are using WinXP Pro, you can significantly enhance your networking performance by turning off QoS in your WinXP Pro installation. To do this, you must use WinXP Pro's Group Policy Editor, an administrative interface that lets you tweak your WinXP Pro installation.

To launch your computer's LGPE (Local Group Policy Editor), click Start, Run, type **gpedit.msc** in the textbox, and click OK. The LGPE console features an Explorer-like interface with an expandable tree of options on the left. Expand Computer Configuration by clicking the plus sign (+) to the left of the entry and then expand Administrative Templates and Network in the same fashion. Click the QoS Packet Scheduler entry and double-click the Limit Reservable Bandwidth entry in the right pane. Click the Settings tab in the Properties window, select Enabled, and choose 0 in the Bandwidth Limit (%) box. Click OK to accept your changes. This tweak significantly enhances your networking throughput by preventing WinXP Pro from reserving any bandwidth for QoS purposes.

All that being said, avoid keeping networking protocols installed that are not used. If you don't use NetBEUI or IPX/SPX (Internetwork Package Exchange/sequenced packet exchange), keeping the protocol installed drags down networking performance. Determine the minimum protocols needed to run your network efficiently and uninstall unneeded protocols. To uninstall a protocol, click Start, Control Panel, and Network And Internet Connections. Highlight the connection you want to configure, right-click it, and click Properties. Click the General tab in the Connection Properties window, highlight an unneeded protocol, and click Uninstall. Repeat as necessary. WinXP uninstalls the protocol and prompts you to restart your computer to accept your changes.

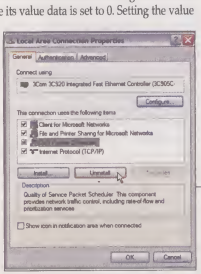
5 Optimize sharing. You may find that WinXP takes a bit of time (in some cases, as much as 30 seconds) accessing shared resources in your network. This is due to the fact that WinXP is configured to search for scheduled tasks and shared printers in other computers containing shared resources in a simple network. This task is unnecessary and fixed with a Registry tweak.

To implement this tweak, click Start, click Run, and type **regedit** in the Open textbox. Press ENTER to launch the Registry Editor and browse to HKEY_LOCAL_MACHINE/Software/Microsoft/Windows/CurrentVersion/Explorer/RemoteComputer/NameSpace. Select the key called D6277990-4C6A-11CF-8D87-00AA0060F5BF and press DELETE on your keyboard. After you exit Registry Editor, your change takes effect.

6 Enable network card processor. Did you know that some NICs (network interface cards) have an onboard processor? Did you also know that your NIC's onboard processor is disabled by default?

If you want to gain some networking performance, enabling the network card processor is a good tweak to try. To do this, open the Registry Editor, and browse to HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\Tcpip\Parameters. Look for a REG_DWORD value on the right pane of the editor called DisableTaskOffload. If this value is present, make sure its value data is set to 0 by right-clicking DisableTaskOffload and clicking Modify.

If the value DisableTaskOffload is not present, create it by clicking Edit, New, and DWORD Value in Registry Editor. Name this value DisableTaskOffload and right-click it to ensure its value data is set to 0. Setting the value to 1 disables the use of your NIC's onboard processor. The results of this tweak may not be readily noticeable, but it does give an incremental performance enhancement by offloading networking tasks from your computer's CPU.

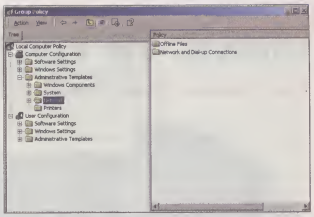


To remove an unneeded protocol, highlight the protocol's entry in the list and click the Uninstall button in the Connection Properties dialog box. Be completely sure you don't need the protocol before removing it.

7 Balancing act. If your computer has two or more network cards installed, WinXP can be configured to balance the load of networking connections between both adapters.

For example, if you are using ICS (Internet Connection Sharing) to share a broadband connection, the host computer must have two NICs installed for ICS to work. The host computer is connected to the broadband Internet connection that is shared via ICS with the other computers on the network, called the clients.

Windows uses a randomizing algorithm to accomplish this load balancing. To do this, launch Registry Editor, browse to HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\NetBT\Parameters and locate a value on the right pane called RandomAdapter. (If the value is not found, create it by clicking Edit, New, and DWORD Value in the Registry Editor menu.) Right-click RandomAdapter, click Modify, and set the Value Data to 1. This turns on the load-balancing capabilities and optimizes the performance of both adapters for managing the number of connections.



The Local Group Policy Editor in Windows XP Pro is the principal interface for adjusting a multitude of settings that control your computer, including networking settings.

8 Peer-to-peer vs. client/server. The choice between using peer-to-peer or client/server networking hinges on your networking environment's complexity. If you are running a small business or home office network comprised of two or three computers and a printer, peer-to-peer networking is the simplest way to go.

In a peer-to-peer environment, a group of computers are connected together in a workgroup, and each can act as a server or client. Also, files, folders, drives, printers, and other resources are shared among all the computers. Using WinXP's ICS, computers in a peer-to-peer network are able to share a single broadband Internet connection, such as DSL (Digital Subscriber Line) or cable.

If you must use resources located in a corporate client/server, domain-based network, you must use WinXP Pro to get this done. A client/server network is typically very complex and can comprise hundreds of client computers, servers, and other networking equipment, such as routers, switches, bridges, and hubs.

In a client-server environment, computers, servers, network printers, and other networked resources are grouped into networking domains. For example, all the network resources within a corporation's headquarters could be grouped under a domain called "headquarters." A **domain** is a way to group network resources into a single, logical structure. Unfortunately, WinXP Home does not have the capability of joining a networking domain.

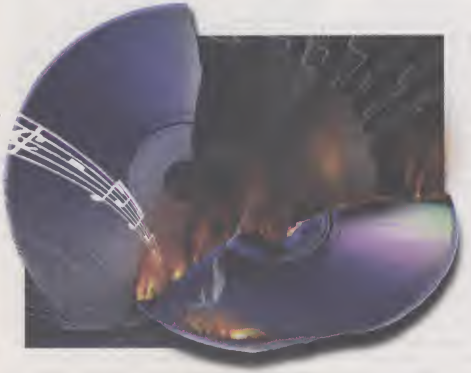
■ **Speed Is What You Need.** As you can see, the tips and tweaks we introduced are easily implemented and quickly deliver enhanced networking performance. As technology enthusiasts and power users continue to get under WinXP's hood, more tweaks and performance enhancements will surely emerge.

Whatever method you choose for tweaking WinXP's networking capabilities, you can rest assured that power users the world over are hard at work squeezing the most possible performance out of Microsoft's very network-capable new OS. LS

by Sixto Ortiz Jr.

Music To Your Ears

Rip & Burn CDs, Convert Audio & Print Labels



You've probably read the hype about how digital audio is so cool, so versatile, and so easy that anyone can run a desktop recording studio with no trouble at all. In a certain sense, this is true. If you can figure out even half of, say, Microsoft Word, stepping through the process of recording digital audio should be no trouble at all.

Just because you can do it, though, doesn't mean you're doing it well. Creating, editing, and outputting digital audio can be easy or difficult, but there are lots of pitfalls along the way. Perhaps you could achieve better quality or do the same job in less time if only you knew the right expert tips.

Well, you've come to the right place. We interviewed product managers and technology officers across the world of digital audio software in search of the most useful tidbits of advice. What follows are some of the best suggestions around for making your digital audio experience more rewarding and productive.

■ **Creation.** The recording of a digital audio file, whether it be from a microphone or a conversion from an old tape deck, is perhaps the most critical time of all. As the old computer saying goes: garbage in, garbage out. If you don't capture the audio properly to begin with, fixing the file's flaws later will prove difficult or impossible. Try these tips to help make your original recordings the best quality possible.

1 Apps can kill. Digital music creation is a relatively high-bandwidth process that demands a lot of system resources. Smooth encoding or ripping of your digital files depends on your creation software being able to perform the recording process at a fast but steady rate. This applies just as much to, say, pulling data off of a music CD as to saving a file from system memory to the hard disk.

The surest way to create hiccups in your data stream or even lock up your encoding or ripping software altogether is to have background applications competing for system resources. Resource hogs, such as digital photography or video-editing applications, are obvious culprits, but in truth, any application puts some amount of strain on your system. The lower your system specs (slower CPU, smaller RAM or hard drive capacities, and so on), the more prone you'll be to resource shortages.

Turn off every extraneous application. This means more than just closing every app you can see on the Taskbar. It entails pressing CTRL-ALT-DELETE and viewing the Processes tab of the Windows Task Manager. You want to highlight every listing that isn't Explorer.exe, Taskmgr.exe, or your current audio application and then click the End Process button. Also, you'll note that many entries in the User Name column are listed as SYSTEM; LOCAL SERVICE, or NETWORK SERVICE. In general, these cannot be closed and are necessary to the regular operation of Windows. Listings with your login name, however, usually can and should be closed if you're experiencing bandwidth problems.

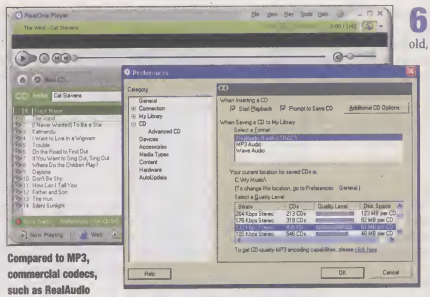
If you feel lazy and wonder if it really is necessary to close all of these programs, at the very least turn off your screen saver (right-click your Desktop, select Properties, click the Screen Saver tab, and select None in the drop-down list) and any virus-checking applications before starting your operation.

2 Find some breathing room. It's not enough to simply be able to fit your audio files onto your hard drive. Encoding and saving data can be a nonlinear process, meaning that chunks of the file get written out of apparent order to various locations on the hard drive or other recording media (such as CD-R [CD-recordable] or Zip disk). Asking the computer to find every nook and cranny of free space on your drive while engaged in the process of writing an audio stream is a sure way to have your creation sessions error out. The media onto which you're saving should have at least two times the available free space of the largest file being recorded. In other words, if you're saving a 200MB WAV file, make sure you have at least 400MB of free space on that drive.

3 In the digital dumps? Try analog. Disc scratches are notorious for causing errors when ripping from CDs. They can create useless CD-Rs (called coasters) with vexing frequency.

CD-ROM drives incorporate some substantial error correction technology, and many ripper apps add yet another layer of error correction, but in cases where digital audio extraction keeps getting snagged on scratched media, switch to analog extraction. Many rippers offer this feature, although you may have to dig for it in Options menus. Analog extraction plays the disc at an extraction speed of a constant 1x. This may have you squirming with impatience, but analog is still a lot faster than tossing out coasters.

Did you check the disc speed? 24X, 32X, and even 48X CD-R drives are now on the market—but does that matter? These days, the speed at which you can write to a CD-R is more determined by the media than the drive. The fastest media available today is rated at 24X, and most manufacturers are still only producing 16X. So when you buy that hot new 48X drive and the burner application capable of 40X writing, the disc will actually slow the whole operation down to its approximate rated write speed.



Compared to MP3, commercial codecs, such as RealAudio and Windows Media, tend to offer superior quality at the same or lower bit rates, but beware of trusting your files to these formats. Many applications and audio devices do not support commercial codecs yet, although WMA is more widely supported than RealAudio.

4 Are you plugged in? One of the biggest problems with digitally encoding analog audio content is simply getting the computer to interface properly with the device. This sounds too simple to be a problem, but analog consumer electronics (tape decks, LP players, and so on), and even newer, digital home theater gear, often don't use the 1/8-inch input jacks found on virtually every sound adapter in the PC world. So what do you do?

If you plan on doing a lot of audio work, even if it's little more than ripping your old analog music collection, we strongly recommend shelling out for a versatile sound board with plenty of input jacks. For a great internal product, try the Audigy Platinum from Creative Labs ($199; http://www.soundblaster.com). If an external, port-filled box you can set on your desk is more convenient, try either Creative's Extigy ($149) or the Hercules Game Theater XP ($129; http://www.hercules.com). These products offer everything from RCA jacks to optical ports to MIDI In and Out, all at your fingertips and without any of the adapter cables you would otherwise need to buy with a conventional sound card.

5 Are you turned on? Once your external audio device is connected properly to the PC (not always an easy task when the markings on the sound card's back plane are hard to make out), you still have to tell Windows or your recording application to recognize it.

Sometimes the Line In or Mic In ports are muted or have their gain turned down too far. To check this, click Start, Control Panel, Sounds, Speech And Audio Devices, Sounds And Audio Devices, and the Volume tab. In the Device Volume section, click the Advanced button. This will show a row of slider controls, one for each of your audio input and output channels. Columns for items such as Line In and Microphone may not be listed. If not, click Options, Properties, and check the boxes next to whichever volume controls are missing from the display. After you click OK, you will see these items join the row of controls.

Make sure all items that you plan to use have a moderate volume level and do not have the Mute option checked. Having the Volume slider set too high or too low may result in distortion or a recording that is too quiet to hear well. You'll want to experiment with these settings. The goal is to have your input gain as high as possible without causing any distortion.

6 Consider an MP3 alternative. Now over a decade old, the original MP3 format is starting to show its age. The industry standard compressed audio format is great, but newer, commercial codecs (algorithms for compressing and decompressing digital content) by RealNetworks (Real Audio) and Microsoft (WMA [Windows Media Audio]) are constantly being improved while MP3 just grows older. The advantage of using a commercial codec is that the quality achieved at a given bit rate is often considerably better than that achieved with MP3. In other words, a "CD-quality" track encoded at 128Kbps (kilobits per second) in MP3 and 64Kbps in Windows Media 8 may very well sound identical. The difference is that while the MP3 track may be 6MB in size, the WMA track will only be 3MB. If you're low on storage space or need to frequently send music files across a dial-up connection, either RealAudio or WMA formats may be more convenient than MP3.

7 Find the sweet spot. If you do decide to investigate WMA or Real, keep in mind that different codecs have different sweet spots, bit rates at which they sound exceptionally good vs. their competitors. With MP3, 128Kbps is often considered to be a sweet spot, but more because this is the point where the codec takes a leap in quality, not necessarily because it outperforms rival codecs at this bit rate. Say, for example, that you want to digitally encode some audiobooks that you own. Spoken content requires nowhere near the same bit rate as quality stereo music. Bit rates from 22Kbps to 64Kbps would be more appropriate, but you'll want to experiment with multiple bit rates in each codec to discover the sweet spot to your ear for that type of content.

8 Pay for the bit rate. Many people are willing to pay $100 to $300 for a killer set of PC speakers but strangely resist paying for registered software. Many shareware or freeware ripping applications give you free rein across the interface but limit the bit rate at which you can encode files. These applications may limit your ripping to 128Kbps or even less. However, anyone with a decent set of speakers

can immediately hear the difference between 128Kbps and an actual CD (1,411Kbps). We find that it becomes much more difficult to distinguish between MP3s and original CDs at around 192Kbps or 256Kbps. So if you really want to balance the space-saving benefits of MP3 (or its equivalent bit rates in Windows Media or Real-Audio) with the enjoyment of sterling audio, use these higher bit rates but make sure your ripper app can support those rates.

9 Record online radio. Do you love your online radio but pine for the simplicity of old analog times where you could just press the Record button and capture the radio broadcast to tape? Actually, you can do even better than that now with digital. All it takes is two computers.

Many recorder applications have built-in controls that prevent you from recording online radio broadcasts. However, you can export this audio stream via your sound card's Line Out port and run it into the Line In of a second system for easy encoding. In fact, many recorder apps support features wherein you can instruct the software to search for silence gaps in your recording and use these to break up the large file into a little one. So, say you record an hour of a broadcast. Have the software find the gaps between songs and break this file up into the dozen or so songs that filled the hour. Listen to them individually and scrap the files you don't want; whatever is left is now a great new addition to your collection.

Note that the copyright issues surrounding this activity are still under heavy dispute. In the analog days, taping a radio show for personal listening would have been considered fair use. Today, the music companies are pushing hard to make this sort of fair use illegal in the digital world. We've told you how to record this content, but whether you should or how you should use the files is up to you.

10 Filter the noise. When recording from any analog source, take extra care to filter out as much noise as possible. Many recording applications offer features for this.

Compression can actually magnify noise. If you're encoding straight to MP3 from the source, a significant amount of source noise is asking for a terrible digital file. That said, many editing programs include noise filters. If you suspect that your recording filter can't handle the entire clean-up job, try encoding to WAV format to avoid compression complications. Run the file through the editor's filter and then convert the file to a compressed format.

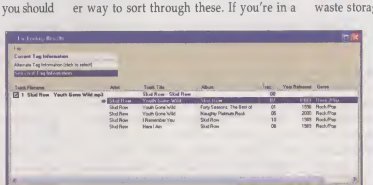
11 Organization is everything. When ripping numerous discs, give careful thought to how the individual tracks are named and where they are stored. For example, say you were ripping a three-disc audiobook. In Windows Media Player, the ripping software insists on creating subfolders titled Unknown Artist in your target folder if you don't supply the program with an artist/author name. In comparison, MUSICMATCH Jukebox (http://www.musicmatch.com) provides options for deciding whether to create subfolders and what components go into the file name. This is really important for organization.

■ **Editing.** Recording audio into a raw digital file is a great start, but it's only the beginning. Now comes the process of polishing that material and making it a more useful part of your entire audio collection.

12 Fill in the ID3 tags. Online disc lookup services are great, but they're still incomplete and essentially useless you're ripping from analog sources. Once you digitize a track and save it, don't just settle for having the track's title. Use your jukebox application to go in and edit the track's ID3 tag properties (the metadata details associated with each music track), filling in details such as genre, album, and artist.

You can get by without doing this if you have only two or three dozen tracks in your collection, but when you start getting into hundreds or thousands of tracks, you need an easier way to sort through these. If you're in a happy mood and just want to hear disco music, the alternative to sorting by the ID3 genre tag is to manually pore through all your bazillion tracks and select the relatively few dance songs you want in your playlist.

If the prospect of manually editing hundreds of ID3 tags has you cringing, try using an automatic lookup utility. An increasing number of jukebox apps have this feature built in. MUSICMATCH, for example, calls it Super Tagging.



Why go through the hassle of manually entering ID3 tag information when there are several utilities, including MUSICMATCH's method called Super Tagging, that can do the legwork for you?

13 Use fades & cross-fades, especially on live material. Nothing sounds worse than having a song end abruptly or hearing the audience in a concert suddenly appear from dead silence at the start of a song. This is what fades were made for.

Practically every audio editor and even many jukeboxes include features that let you ease in and out of a track, gently sliding the volume over a given number of seconds. Using these whenever necessary can turn a jarring musical experience into a relaxing one. Similarly, many editors let you perform cross-fades, having one song fade out while another song fades in so that there is no silent gap between the tracks. DJs do this all the time with dance music, but cross-fades are a great way to make your live recordings sound far more professional. Instead of sharp cuts at the ends of tracks, you should hear a fairly constant level of background audience chatter. Look for editing features like this in high-caliber burner applications, such as Roxio's Easy CD Creator 5 ($99.95; http://www.roxio.com).

14 Record big, edit down. Say you already know that the samples you're encoding are going to get mixed into the background of another track. Because the sample will be in the background, there's no reason to waste storage space by encoding at full CD-quality, 44.1KHz, 16-bit audio, right? You could encode at 22KHz and 8-bit resolution and no one would ever know the difference.

Well, maybe and maybe not. Tracks encoded at full audio resolution that are subsequently edited down to the desired fidelity levels generally sound better than those recorded outright at the lower levels. Remember that you can always pull data out of a file during editing, but you can't put information back in if you need it later.

CD labels are not generally considered works of art, but if you take pride in the appearance of your discs, consider a powerful tool such as Stomp's MySoundStudio, which features not only a wealth of included clipart but also the basic tools you need for editing your own images.

15 Be an equalizer. If you've ever used a graphic equalizer, either as part of a software audio player or a 1980s stereo component, you know that different bands on the equalizer boost or diminish different frequencies within the audio range. Dance and rock music, for example, generally sounds better with the bass frequencies elevated and the midrange more centered. However, compression tends to boost bass and drop mids. When you edit raw audio before converting into a compressed format, be sure to set your options to equalize the tracks.

16 Double-check before you convert. You may be in love with the RealOne jukebox app from RealNetworks and use it for all of your ripping. After all, RealAudio sounds great and saves space on your system. But if you have an audio project you're working on and want to convert from WAV into RealAudio for the sake of easier storage, stop to ponder where that file is going when it leaves your hands.

Will other people be able to play it? Will it run in your MP3 player? Perhaps not. The same is true for Windows Media or another other codec. Will popular editing software support your favorite audio format? Issues like these are why many people leave audio in native WAV format for creation and editing, and only at the very end convert to a compression codec for easier handling.

■ **Burning.** You just created your digital musical masterpiece, and now you want to burn it to a CD and share it with the world. There are more things to consider outside of what speed you should burn at.

17 Pay for quality. Although CD-Rs aren't exactly a dime a dozen yet, the day can't be far away. However, the old adage that you get what you pay for holds true with CD burning. No-name or nonbranded discs are often the B grade media major manufacturers kick aside for having not passed the higher-priced premium brand specifications. The dye coating the disc's substrate may be thinner than usual, particularly out beyond the 500MB mark. This would explain frequent coasters made toward the end of the burning process. If you can live with more coasters, save your money, but if you want the job done right the first time, pay a little extra for a reputable disc brand.

18 Are you normal? You might think there would be an industry standard for recording levels in music, but there isn't. Rip a dozen or so LPs, and you'll be aghast at the variation in volume between one album and the next. Burn your own mix from these tracks to CD and you'll be constantly reaching to adjust the volume from one song to the next. The same variation can affect microphone-based recordings and CD rips, as well.

Normalization is a feature that increases volume just shy of the point where distortion will creep in. Any good burning application should provide a feature for normalizing your track list so that the volume level across the disc stays fairly constant.

19 Preview unless you're positive. Although we don't condone using online file-swapping services to procure copyrighted music, we understand that these services can be useful for procuring a wide range of audio content, legal and otherwise. However, if you intend to use this content, listen to the tracks you download before burning them to disc or passing them on. The people who originally ripped these files are just as prone to encoding hiccups and distortion as you, and one of the many reasons to pay for CDs is that downloaded audio is notoriously fraught with pops, noise, hiccups, and (the worst) premature endings.

20 Banish buffer underruns. During a CD-writing session, the burner requires a constant stream of data. If the stream runs dry, the laser has nothing to write, and the session aborts, leaving you with a dead disc. To help prevent this, drives use a memory buffer to help stockpile data for writing, so even if the system has a hiccup in sending data, the buffer makes sure the laser has a constant supply.

Unfortunately, system bottlenecks and other problems sometimes lead to no data being sent to the drive for a prolonged period, forcing the buffer to empty and the write session to fail. As discussed above, this is why you want to close any extraneous system resource drains.

Fortunately, a relatively new technology helps prevent these buffer underruns. Sanyo calls it BURN-Proof, Yamaha uses SafeBurn, and there are several other variations. Essentially, what they all strive to do is halt the laser when the buffer empties. Once the buffer fills back up, the writing resumes. This sounds obvious, but it took many years to actually develop. Make sure when you purchase a new CD burner that it features buffer underrun protection. Also make sure that your burning software supports the feature and that you

have the protection enabled. If the software shipped with the drive, compatibility should be no problem.

If you don't have a drive with buffer underrun protection and are generating a lot of coasters, try to lighten the load on your laser and write at slower speeds. Start at 1x and slowly increase until you discover the point at which you start having failed write sessions.

When you notice coasters piling up, question your media. Name-brand discs from manufacturers such as Yamaha (pictured here), TDK, and Memorex tend to be very reliable. You should view generic, heavily discounted discs more cautiously.

21 Two (or more) burns for the effort of one. CD-R drives have been on the market long enough that many users are starting to accumulate multiple burners. Perhaps that old 4X drive was replaced by a 32X and is now sitting neglected in the bottom bay of its midtower. With the right software, that old drive can still be put to good use. Some burner apps, such as Stomp's RecordNow MAX ($39 download; http://www.stompinc.com), support burning to multiple drives simultaneously. When you need to run off lots of copies, keep this option in mind.

22 Keep current. Burner software goes through revision changes just like all other applications, and it can pay to stay on top of the latest editions.

For example, if you recently purchased a new, high-speed burner drive, the faster performance won't do you any good if you're still using software that can't write over 4x. Similarly, newer applications are now supporting features such as DVD burning, higher bit rate encoding, editing tools, and label creation. Most software vendors offer discounts to upgrade buyers, and some may even offer free upgrades for a given period after the initial purchase. You don't want to be digging for your credit card every three months, but you also don't want to miss out on very useful features that could help your audio experience. Just keep an eye on your software vendor's site for upgrade news.

■ **Labeling.** Just because the disc is blank—of both information and personality—when you burn it doesn't mean you have to keep it that way. Don't just write on the disc with a marker. Check out the various label-making programs and what you can do with them.

23 Can you import? It's handy when labeling software comes with its own clipart library, but after a while, that canned imagery starts to look a bit stale. When you buy your labeling app, look for one that lets you import graphics from outside sources, such as a scanner, camera, or files already on your system. Being able to perform basic editing tasks on these is a plus but not essential. You just don't want to be limited in your labeling creativity.

24 Compatibility is key. Some labeling programs push you into using only a few brands of labels. Try to avoid this and make sure your software supports everything from Avery to Stomper. Because label manufacturers can vary in their page layouts, you need to be able to precisely calibrate your print job for any vendor. Similarly, while you're presumably buying this for printing CD labels, the ability to print labels for DVDs, Zip disks, VHS tapes, and so on could be a real perk. Some vendors support this and some don't, so be sure to get your money's worth and check.

25 Thickness matters, but not in a good way. Common label wisdom says that thicker labels are more durable and are preferable to thin labels. Although thick stock may last longer (and how many decades are you keeping these, anyway?), many inkjet printers have trouble printing accurately on thick stock. Some will even jam. Thin stock from a reputable brand will perform well and be safer. It is particularly important to choose a solid, quality brand because cheap labels are infamous for peeling, and in some cases this has been known to actually damage the inner workings of the CD drive.

26 Look sharp for an extra buck. You can run CD labels through a laser printer, but for the best quality results, you really want to use a photo quality inkjet. And while you're using that inkjet, consider your label stock. Matte stock usually costs a bit less than glossy, but some people are unaware that photo printers can only achieve their best results on glossy stock. If you plan on using photographs or complex line art in your labels, pay the extra buck or two and get the better labels.

27 Let the white work for you. It takes a graphic artist to give a qualified opinion on what makes an attractive vs. an ugly label. (As a general rule, simpler is better.) However, many users fall into the trap of slapping a ton of color onto their labels, not realizing that the underlying white will tend to wash out solid, medium-tone colors. Given that, work with the white label rather than against it by creating predominantly white or pale labels accented by a few choice dark designs.

■ **Home Production Plant.** Not so long ago, creating and editing audio was a job for professionals or rather wealthy hobbyists. Now, even a child's allowance can buy audio gear capable of delivering professional digital results. Moreover, the software to perform these tasks is simple enough for even children to master.

Working with digital audio is no longer a chore; it's a blast. The tips we've covered here are meant to help reduce your learning curve and save you some time lost to trial and error. The fun part, the creative part, is still up to you. LS

by William Van Winkle

Tommy, Can You Hear Me?

Get Better Sound From Your PC

If you think computers are useful only for downloading MP3 files or surround-sound speaker systems are only for big-screen televisions, think again. In recent years, computer users have discovered that PCs are now an excellent and highly adaptable vehicle for audio entertainment. This is especially true for users of Windows XP, which is more multimedia-intensive than any previous version of Windows.

Whether you are a hardcore gamer seeking realistic special effects, an audiophile saddened by the demise of a rare Berlioz CD, or a movie buff looking to enhance the sound of your favorite old movie, your PC can be an important partner in the quest for acoustic bliss.

In this article, we'll show you how to tweak WinXP for maximum audio performance. If you have a few dollars to spend, we'll also tell you how to equip your system to provide realistic, concert-quality sound. The more you do, the more benefits you'll reap, but even a few basic adjustments will enhance the audio quality your PC provides.

Use Your Most Valuable Player.

MPXP, the version of Windows Media Player that comes with WinXP, is a capable playback (and file transfer) utility for CDs and many types of digital audio and video files, including its native WMA, as well as MP3. (It does not support RealPlayer files.) Customizing MPXP can enhance the quality of the music you play, both on your computer and the external devices to which you download files.

1 Smooth out those scratches. From within MPXP, choose Options from the Tools menu. If you have CDs that are scratched and do not play well on your home CD player, select the Devices tab and select your CD player. Click Properties and click the Use Error Correction option for both Playback and Copy.

2 Compression. If you download music and save it with MPXP, click the Copy Music tab and choose the compression rate at which audio files will be copied. Always download or transfer audio files at the maximum sampling rate and then enable MPXP to perform further compression. By default, MPXP converts files only to WMA format, but you can purchase a third-party utility if you wish to convert files to MP3. Cyberlink's (http://www.gocyberlink.com) costs $9.95.

3 Perfect balance. From the View menu, choose Now Playing Tools and select Show Equalizer and Settings. This will open MPXP's sound settings feature in the lower left of the playback window. While an audio CD is playing, click the Select View button at the bottom left and select Graphic Equalizer. Click the Default button and select an equalizer setting that matches the type of music you are playing. You can also move the slider bars on the equalizer to adjust the settings manually. Now, click the Select View button again and select SRS WOW Effects. Make sure it is on. Choose your speaker type and adjust the slider bars. Depending on your sound card, this may enhance your sound even further.

4 Sound it out. With an audio CD playing, adjust the controls in WinXP's built-in sound applets. From the Start menu, select Control Panel, then Sounds, Speech, And Audio Devices. Click the Sounds and Audio Devices option. Under Sound Playback on the Speakers tab, click Advanced. Under the Speakers tab, make sure your Speaker setup choice matches your actual configuration.

Click the Performance tab. Both Hardware Acceleration and Sample Rate Conversion Quality should be set to the far right for optimum sound quality. The main reason to reduce this setting would be if you have an older system and you are having problems with your audio. If you have an Advanced tab under Sound Recording, check its settings, as well (they should also be set to maximum).

5 Loud as a bomb. In the Volume tab, click Advanced under Device Volume to open the Volume Control window (sometimes called Play Control). Here, you can adjust the volume and balance settings for your sound card and its output and input sources, which vary based on the type of sound card you have. Move the Volume Control slider bar to two notches above the lowest setting and adjust your speaker volume upward, either on the speakers themselves or with the Speaker Volume tab under Speaker Settings in the Sounds And Audio Devices Properties window. The Speaker Volume tab also lets you

Windows Media Player for Windows XP incorporates a built-in graphic equalizer that lets users tweak sound quality.

adjust speaker balance to compensate for uneven speaker placement.

Now reverse the settings (reduce the speaker volume and then increase the Volume Control setting) and compare the quality of both options. Volume Control maintains the volume of the preamplifier in your sound card. If this setting is too high, the sound comes across as a hiss. However, turning your speakers up too far can cause distortion. Work with these settings until you find the right balance between the two. If your sound card supports separate treble and bass adjustments, or if it incorporates a mixer or graphic equalizer, you will have these options and can also adjust the tone settings to your liking.

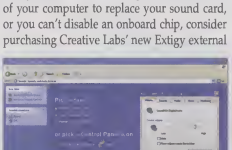
In the future, as you use other sound devices, such as a microphone, return to this window to make volume and balance adjustments. If your sound card supports a device that is not shown, enable it from Properties in the Options menu.

6 Get carded. Your sound card (which can also be a built-in sound chip) has more effect on sound quality—and capabilities—than your speakers. Make sure you have the latest driver loaded for your sound card and check with the sound card's documentation to see if any special tweaking utilities are provided. If so, use them. If you have unused speaker jacks, you can add more speakers without upgrading your sound card.

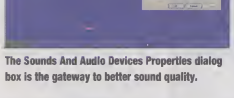
If you have a line-out jack and speakers with a built-in amplifier, connect the speakers to this jack rather than the speaker-out jack. The line-out jack bypasses the inadequate amplifier that comes with most sound cards, resulting in better, static-free sound. (Use this jack also if you ever send audio to your home stereo amplifier.)

If you do not have any of these features and you have a sound card, you can purchase a new sound card, and WinXP will make it a snap to replace. If you have an integrated sound chip and not a sound card, check with the manufacturer of your PC to ensure you can disable or override the onboard chip before you buy a new sound card. When purchasing an upgraded card, look for one that supports Dolby Digital 5.1, the current technology in surround sound. Dolby 5.1 provides awesome, six-channel (5+1, hence 5.1) surround sound in a compressed format that saves on file space. Even if you can't afford Dolby-ready speakers now, you may be able to as prices drop. A good, budget-conscious, Dolby-compatible sound card is Creative Labs' Sound Blaster Live! 5.1 (http://www.soundblaster.com/products/sblive5.1). Expect to pay less than $40 for the OEM version, which doesn't include a manual.

If you don't want to tangle with the inside of your computer to replace your sound card, or you can't disable an onboard chip, consider purchasing Creative Labs' new Extigy external



The Sounds And Audio Devices Properties dialog box is the gateway to better sound quality.



Creative Labs' Sound Blaster Extigy is a great add-on option if you do not want to perform an internal upgrade of your sound card.

sound card (less than $150), which plugs into an available USB (Universal Serial Bus) port. With five input jacks, seven output jacks, support for Dolby 5.1, and a remote control, the Extigy will suit just about everyone.

7 You're surrounded. Unless you have purchased an upgraded sound system for your PC, your speakers will be built into your monitor or consist of two external speakers placed on either side of the PC. If you have treble and bass controls, use them, especially if your sound card does not offer separate treble and bass settings. If you have a 3D button, compare the sound quality with it off and on. Some of these buttons disable stereo.

If your speakers have a tinny tone (which basic models often do), replace them with decent PC speakers for as little as $25. Do not use home stereo speakers with your PC. They require more amplification than your sound card can provide and will not reproduce sound efficiently. More importantly, speakers incorporate magnets that can scramble or even destroy your monitor or the data on your hard drive.

PC and most multimedia speakers are magnetically shielded, but many stereo speakers are not. According to representatives of North Carolina-based multimedia speaker company NSM Audio Company (http://www.nsmaudio.com), speakers should never be placed closer than 1.5 feet from a PC, monitor, television, or VCR unless they have been magnetically shielded.

Your options for speakers will depend on the capabilities of your sound card. If possible, purchase a system with at least two speakers (stereo) and a separate (satellite) subwoofer, a larger box that is placed beneath your desk. Subwoofers provide the bass tones necessary for good sound quality. They often incorporate a sound amplifier, letting you bypass the sound card's amplifier if you have a line-out jack. If your sound card has the capabilities (and you have the budget), purchase a surround-sound system, which incorporates four or five speakers and a subwoofer. Models start at less than $100. Logitech's SoundMan Z-540 (http://www.logitech.com/cf/products/speakers.cfm), at $79, is an award-winning choice.

Another important aspect of sound quality is speaker placement. If you have only two speakers, place them at least 3 feet apart (6 feet is better), approximately 2 to 3 feet from your ears, tilted slightly toward your head. If you have four speakers, place the second pair as far behind you as necessary (adjust the volume to compensate this move) in mirror position to the front speakers. Play a favorite piece of music and adjust the speakers until you find your "sweet spot." Don't forget to readjust your Speaker Settings in the Sounds And Audio Devices Control Panel.

■ **Sound Advice.** If your budget will permit you to purchase new equipment, you can have near theater-quality sound from your PC. Depending on your video card, you may be able to run an entire home-theater system straight from your PC, which will give you file-management capabilities unheard of with a standard home-theater system. Even if you don't spend a dime, you can make substantial improvements using the tips we have offered here. In our test environment, we tweaked a built-in sound chip and a $25 pair of speakers and were amazed at the final results. Take the time to do the same for your system, and your PC will help you discover a new world of acoustic enjoyment. LS

by Jennifer Farwell

Total-Body Makeover

Give Media Player A New Look With Skins

Just a few short years ago, personality and PCs were like oil and water: two completely unrelated concepts that did not mix, even with our awkward attempts to integrate the two.

You may recall when a piece of tape and a Polaroid printout were all we had to show off who we were, where we'd been, and our precious moments or people. It didn't take long for software developers to recognize the power of personalization with simple tools, such as customizable screen savers and wallpapers. Suddenly we had the freedom to drape our Desktops with images of our kids, pets, hobbies, or whatever inspiration or ideology we espoused on any given day. We thought we had it good, but things were just getting started.

With this latest version, Microsoft has put the power of appearance into your hands by way of skins, which actually change the outward appearance of your WMP (Windows Media Player).

■ **WinXP Gets Personal.** Fast forward to 2002, when Microsoft's Windows dominates the OS scene, and Bill and his team have gone out of their way to extend our personalization options. With the latest version, Windows XP, they've left little that can't be personalized visually, and the included WMP is no exception.

You've probably already discovered this handy digital media application that lets you manage all your audio and video functions, including copying your music collection onto your PC's hard drive and tuning in Internet radio broadcasts, from one convenient interface. Function-wise, you are your own personal DJ, but WMP goes a step further to give you control of form, too, by way of **skins**, which alter the outward appearance of an application.

Skins are where art, code, and your personality collide and change the appearance and, at times, the functionality of WMP. Think of skins as a change of clothing or a full makeover for WMP.

At the very core of skins is a **GUI (graphical user interface**, pronounced gooey), which is the use of graphical symbols and menus to carry out commands so that you may open files and interact with applications without a database of confusing commands at your side. Without a GUI, you'd be stuck in a character-based system. But thanks to the GUI, you interact with graphics and icons on your computer's screen to get things done and you get toys like changeable skins for your WMP.

■ **The WMP Skinny.** Although they are present at startup, WMP's skins aren't apparent at first glance. In fact, WMP will always start in Full Mode by default, displaying the full WMP application screen with commonly used functions stacked to the left: Now Playing, Media Guide, and Skin Chooser among the options.

Select your look. Click Skin Chooser to access a two-pane skin management screen, which displays an alphabetical list of available skins in the left column and a preview panel in the right. WMP includes a collection of 20 skins that cover the range from artistic and techno to classic and juvenile. Click any of these skin selections, and a small, nonfunctioning version of that skin will appear in the Skin Chooser's preview screen. Continue previewing selections by clicking skin titles in the left pane or using the Up or Down arrow keys to quickly scroll through the list.

In Skin Mode, click Apply Skin, a function that appears just above your skins list. At this point, the Player will shift from Full Mode to Skin Mode to display your fully interactive skin selection and a small Anchor Window in the bottom right that lets you access a handful of WMP functions, including Switch To Full Mode and Select A New Skin, both of which return you to Full Mode. You may also return to Full Mode from Skin Mode at any time by pressing CTRL-1.

Functions vary. Inside Skin Mode, the controls available to operate WMP and access your tunes are dependent on the skin you choose. Although some selections provide only Play, Stop, Previous, Next, and Pause functions, others offer more complex options, such as playlist displays, visualizations, and repeat/random functions.

A skin's available controls are the decision of the designer, and although some are blatantly obvious at first glance, others require that you search around a bit to find semiobscure windows, panels, and functions. Even so, the 20 skins that come installed with WMP will keep you busy for only so long before you find yourself craving more. Fortunately, Microsoft itself and a handful of independent designers and developers make it simple to switch your skin and expand your collection.

■ **Skin With Microsoft.** One way to expand your skins collection is to buy Microsoft's WinXP companion CD, the appropriately named Plus! for Windows XP.

Along with an assortment of add-ons and utilities, such as games and themes, compiled to help you enrich your WinXP experience, Plus! provides four new skins: Aquarium, da Vinci, Nature, and Space, all of which are designed to conform to a matching Desktop theme. To purchase the Plus! for Windows XP CD, visit the Microsoft Web Plus! site at http://www.microsoft.com/windows/plus to shop online or order via phone at (888) 218-5617. To install and access your new Plus! skins, follow the included instructions for a full Plus! install, and your new skin selections will appear inside your Skin Chooser list.

For those who want more than a mere four new skins, Microsoft offers Windows Media

Bonus Pack for XP and Windows Media Bonus Pack for Player 7.1, both free downloads from Microsoft's WMP site at http://www.microsoft.com/windows/windowsmedia/coolstuff/playit.asp. You'll get 11 additional skins between the two downloads, including TDK's high tech Digital MixMaster and two selections from Microsoft partner, The Skins Factory.

For further skin satisfaction beyond Microsoft's Plus! and Bonus Pack, you'll be pleased to find a seemingly endless assortment of skinning options online. To start your search, return WMP to Full Mode, open the Skin Chooser window, and click More Skins (just above your skins list), to open your Internet browser and visit Windows Media.com (http://www.windowsmedia.com/mg/skins.asp; Microsoft's free skins download page).

Before and after: By selecting a different skin, you quickly change the entire form and function from the default skin (top) to The Sentinel, one of hundreds of skins you'll find from Microsoft.com and a handful of third-party skinning sites.

This weekly updated site presents two featured skins near the top of its front page with additional options immediately below (at press time, more than 50 skins were available for download). To begin downloading skins, click the link next to the desired selection. Once download is complete, your skins list will automatically update to include your new skin. You may view your new skin in Skin Mode immediately by clicking View Now from the Windows Media Download window. Or preview first inside the Skin Chooser window and then click Apply Now to view in Skin Mode.

■ **Strangers With Skins.** Conduct a simple keyword search for **WMP skins** at Google (http://www.google.com) or another Internet search engine, and you'll quickly discover dozens of third-party skin providers with sites (or at least several pages) devoted to fast-growing skin galleries. At press time, the Internet's most popular and heavily trafficked were DeviantArt, LotsOfSkins, and WinCustomize. Each provides a hefty number of creative skins both professionals and novice WMP users developed, free for the downloading.

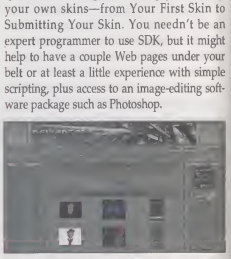
DeviantArt. DeviantArt (http://www.deviantart.com) designed the most efficient search function of the bunch with thumbnail previews of as many as 60 skins per page. You'll find a few repeats from other skin sites at DeviantArt; however, the inventory of professional designs from devoted skinners makes this site worth a stop. At press time, DeviantArt offered more than 100 WMP skins, available for free. From the left column, click Application Skins under the Deviations category, scroll down and click WMP 7 or WMPXP, and view thumbnail previews of available skins. To begin a download, click the thumbnail to view the full skin information and then click the download arrow icon directly beneath the full image. Once complete, click View Now from the Windows Media Download window.

Lots Of Skins. As of press time, this third-party skins site (http://www.lotsofskins.com) offered more than 55 user-submitted WMP skins. To begin downloading WMP skins, scroll down to Categories in the left column and click WMP. A list of skins will display in the center column by date posted online; however, you may shuffle search results to display skins by number of downloads or views as well. To download and install, click the Download link next to the desired skin and then click View Now from the Windows Media Download window.

WinCustomize. Very similar in layout to Lot Of Skins, WinCustomize (http://www.wincustomize.com) offers a slightly larger inventory of WMP skins with 65 available for download at press time. From the left column under the Library section, click WinMedia to display a list of all available skins by most downloaded, highest rated, or by author, creation/update date, or skin name. Click the Download link next to the desired skin to begin the download process, then click View Now from the Windows Media Download window to apply your new skin in Skin Mode.

■ **Show Your Own Skin.** Finally, if you think you have what it takes to one-up Microsoft and other WMP skin designers, download Microsoft's Windows Media Player 7.1 SDK (Software Development Kit) from the MSDN (Microsoft Developer Network) Library at http://msdn.microsoft.com. From the Library, choose Graphics & Multimedia, click Audio And Video, and then SDK Documentation to select Windows Media Player 7.1 and begin downloading the full kit.

From this link, you'll also find a full category of articles and guides to help you develop your own skins—from Your First Skin to Submitting Your Skin. You needn't be an expert programmer to use SDK, but it might help to have a couple Web pages under your belt or at least a little experience with simple scripting, plus access to an image-editing software package such as Photoshop.



DeviantArt.com is one of the Internet's most popular sites for downloading professionally designed skins. Search Application Skins in the left column to find a huge inventory, free for the taking, for your Media Player.

■ **The Molting Process.** Microsoft's entry into the field of skinnable applications with WMP has already inspired nearly 200 skins between Microsoft.com itself and a number of third-party skin providers. Shed that default skin and start accessing your tunes through a high-tech stainless steel interface or the anime, environmental, underwater, or even Macintosh look you so love and deserve. With skins like these, it's no longer hip to be square. LS

by Linda Rains

Go Ahead, Talk To Your PC

Use Voice Commands To Simplify Your Windows Media Player Experience

Microsoft Plus! For Windows XP, an add-on program for WinXP, lets you tailor digital audio and video to your taste and adds features for gaming and customizing your Desktop. One feature you can add to your computing experience with Plus! For Windows XP is Voice Command for WMP (Windows Media Player). Voice Command lets you control WMP without lifting a finger. All you need is the Plus! software and a microphone, and you can control WMP with your voice. Microsoft Plus! For Windows XP is available from Microsoft at http://www.microsoft.com for $29.95.

■ **Installation & Registration.** Insert the Microsoft Plus! For Windows XP CD-ROM into the CD drive. A message may appear, stating that some of the features in Plus! require at least 16MB of video memory and that your system does not have enough memory for this. If this is the case, the following items won't be installed: digital media features, Russian Square Plus! Edition, and themes. In addition, Labyrinth Plus! Edition, HyperBowl Plus! Edition, screen saver, and visualizations won't be installed. Click Yes to continue with the installation if that's not a problem for you. Otherwise, click No and consider upgrading your video card.

After clicking Yes, the Microsoft Plus! For Windows XP Wizard appears with the Welcome. Select Express Installation or Custom Installation and click Next. When the License Agreement appears, select I Accept The Terms In The License Agreement and click Next. The Ready To Install Program screen appears, click Install and the Installing MS Plus! For Windows XP screen appears. Once installation is complete, you can choose the Start Microsoft Plus! For Windows XP Now option to launch Plus!, or you can click Finish. If you choose to not start Plus! after installation, click Start, All Programs, and Microsoft Plus! to launch the program.

When Plus! For Windows XP opens, the Microsoft Plus! Registration Wizard appears. Registration is optional, and it entitles you to better customer support and up-to-date information about upgrades and new products. If you choose to register, connect to the Internet and click Register Online. When the Plus! Registration page of the Microsoft Web site appears, follow the prompts on-screen. To register at a later time, click the Registration link on the Plus! For Windows XP Welcome screen.

■ **Get Started.** When you open Plus!, the Welcome screen appears, giving you several categories to choose from: Digital Media, Games, Themes, Screen Savers, or More Plus!. To add Voice Command to Windows Media Player, click Digital Media. The Plus! Digital Media screen appears with these tools: Plus! Voice Command For Windows Media Player, Plus! MP3 Audio Converter, Plus! CD Label Maker, Plus! Speaker Enhancement, Plus! Personal DJ, Microsoft Windows Media Player Skins, and Plus! 3-D Visualizations.

You can click the heading of each tool for a brief description of the option, or you can click More Information to learn more. You can also start all of the options from within the Welcome screen except Plus! Speaker Enhancement, Microsoft Windows Media Player Skins, and Plus! 3-D Visualizations. When you click the More Information link for Plus! Voice Command For Windows Media Player, you will see a more detailed description of the tool, as well. You can click Help to access the Help file or click Start to run the program.

Microsoft Plus! for Windows XP
Some of the features in Microsoft Plus! for Windows XP require a video adapter with at least 16 megabytes of video memory. The video adapter for your computer's primary monitor does not have enough video memory for non-Panel features.
If you continue setup, the digital media features, Russian Square Plus! Edition, and themes will be installed. The Labyrinth Plus! Edition, HyperBowl Plus! Edition, screen savers, and visualizations will not be installed.
Review the minimum system requirements and instructions for finding your video adapter's memory in the Readme for Microsoft Plus! for Windows XP.
Do you want to continue setup for Microsoft Plus! for Windows XP?
Yes
No

Some features of Microsoft Plus! For Windows XP require at least 16MB of video memory. If you don't have enough memory, this message appears. Click Yes to continue the installation.

Click Start and the Welcome To Plus! Voice Command For Windows Media Player appears. Choose how you want to configure Plus! Voice Command and click OK. We selected I Want Plus! Voice Command To Run As The Only Speech Recognition Program.

■ **Configure Plus! For WinXP.** Before you can run Plus! Voice Command For Windows Media Player, you will need to complete these three steps to configure the program. First, click Configure Microphone and the Microphone Wizard appears with the Welcome. Both headset and standalone microphones are supported.

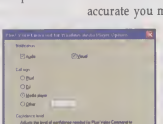
Check that your microphone is set up and adjusted properly and click Next. The Adjust Your Media Player Volume screen is shown; speak the sentence displayed on the screen. The volume meter should move while you're speaking. If it doesn't, follow the directions on-screen. Click Next. The Test Positioning screen appears if you're using a headset microphone; speak the sentence displayed on-screen. A recording of what you say is played back; if it sounds like you're blowing air into the microphone, position the microphone farther from your mouth until you eliminate the blowing noise. Otherwise click Finish. If you're using a standalone microphone, click Finish without speaking the sentence.

Second, click Configure Language Bar and the Plus! Voice Command Help file opens with

the Using The Language Bar topic. Read through the Using The Language Bar topic to learn how to configure the Language Bar. Close the Plus! Voice Command For Windows Media Player Help file. The Language Bar should appear in the upper-right corner of the Desktop and will contain speech recognition command buttons.

Third, click Available Commands to launch the Plus! Voice Command For Windows Media Player Help file with the Plus! Voice Command Reference topic. The commands, along with a Call Sign, are what give you control over WMP. The Call Sign lets WMP know you are talking to it. The default is Media Player but you can change this through the Plus! Voice Command For Windows Media Player Options, which is described later. You will always speak the Call Sign before the command.

From the Plus! Voice Command Reference topic, choose to view Commands For Controlling Playback, Commands For Controlling Appearance, or Other Commands. Playback commands control how WMP plays media. An example of a Playback command to turn off the sound without stopping play is to say, "Call Sign, Mute." Appearance commands control the look of WMP on-screen. For example, say "Call Sign, Hide Playlist" to hide the selected playlist. The list of Other Commands details additional commands WMP supports. Close the Plus! Voice Command For Windows Media Player Help file. Now that you have completed all three steps, click OK.



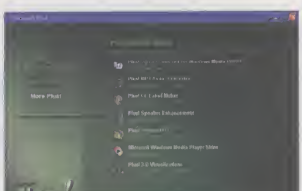
The Plus! Voice Command For Windows Media Player Options window lets you change the Call Sign for WMP.

■ **Command With Your Voice.** WMP is automatically opened and you are now ready to start talking. From the playlist drop-down menu, select the audio or video item you want to play and speak any command into your microphone. We first tried saying "Media Player, Play" and it worked right away. We followed that with "Media Player, Stop" and the music stopped. We also changed the appearance of WMP with the command "Media Player, Hide Visualization," "Media Player, Hide Equalizer," and "Media Player, Show Media Information." And to find out what commands we could use for WMP, we said "Media Player, What Can I Say?" If WMP doesn't recognize your command on the first try, say the command again in a more even tone of voice and WMP responds.

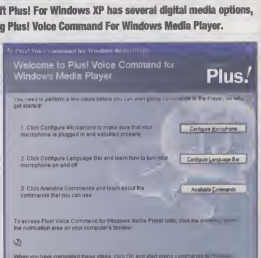
After you've had a little fun commanding WMP, click the Plus! Voice Command icon in the Taskbar. The icon is a musical note located in the lower-right corner of your screen. When you do this a pop-up menu appears, giving you the following choices: Getting Started, Available Commands, Help Topics, Options, Plus! Voice Command On, Plus! Voice Command Off, Start Microsoft Plus!, Start Windows Media Player, and Exit. Select Options and a dialog box appears, letting you choose the method of notification WMP uses to let you know whether a command was accepted. You can also change the Call Sign you use to activate your commands; choose from Plus!, DJ, Media Player, or Other. If you select Other, type in the word you want to use in the provided box. Click Apply, then OK.

The Confidence Level determines the amount of confidence you want WMP to have in your spoken commands in order to respond. The higher the level of confidence you choose, the more accurate you must be in your spoken commands. You can adjust the Confidence Level lower or higher using the sliding scale.

If you've changed your mind about how you want to configure Plus! Voice Command For Windows Media Player when it comes to recognizing different speech recognition programs, click the checkbox next to Run Plus! Voice Command As The Only Speech Recognition Program. Click the Speech Settings button and the Speech Properties dialog box appears where you can change the microphone configuration, voice recognition profiles, and voice speed. If you are not sure of an option, click Help and the Plus! Voice Command For Windows Media Player Help file will launch.



Microsoft Plus! For Windows XP has several digital media options, including Plus! Voice Command For Windows Media Player.



Before you can start using Plus! Voice Command For WMP (Windows Media Player), you must follow these three steps: Configure Microphone, Configure Language Bar, and Available Commands.

■ **Watch Out For Laryngitis.** We found using Microsoft Plus! For Windows XP to add voice command for WMP to be quick and easy. WMP responded to us on our first command and continues to respond consistently. It's actually surprising that we haven't run into any problems or experienced any errors while commanding WMP. So with everyone always looking for ways to make life a little bit easier, why not set up your Windows Media Player to respond to your voice? In no time at all, you'll be sounding out commands left and right. LS

by Dana Montey

Play In The Desktop Theme Park

Customize Your Windows XP Work Space To Fit Your Style

In your office, everyone dresses alike and sits behind identical, beige PCs. At home, Spider-Man and Barbie CD-ROMs have taken over your PC. In a world where we can't control the choice of office PCs, the company dress policy, or even how many LEGOs lay atop the keyboard at home, individuality is a valuable commodity. Customize the wallpaper, icons, cursors, and sounds that make up Windows XP's Desktop Themes and express yourself.

Right-click a blank spot on your Desktop, click Properties from the context menu, and click the Themes tab. Only two Themes (Windows Classic and Windows XP) are in the Themes drop-down menu. Don't fret; you can download new Themes or install Themes from the Windows Plus! CD. (See the "Design Your Own Desktop" sidebar to learn how to design your own Themes.)

■ **Where The Wild Themes Are.** Theme Doctor (http://www.themedoctor.com) is one of the best places to find themes. You can see a thumbnail image of the Theme's Desktop and read Pros and Cons for each Theme. In the Cons section, Theme Doctor notes if a Theme does not install properly and if there's a fix. We suggest selecting Themes that Theme Doctor says are free of any installation defects. You can also download free Themes from a plethora of other sites, such as ThemeWorld.com (http://www.themeworld.com).

Not all Windows 95/98/NT/Me/2000 Themes work properly on WinXP; make sure any Themes you download are marked as XP compatible. When you download the file, save it to a folder that is located on the same partition on which you installed WinXP. For most users, this will be the C: drive.

Right-click My Computer on the Desktop, click Explore, and find the downloaded Theme. If it's in a compressed format (such as those files with a .ZIP file extension), you'll need to double-click it. This should launch a decompression utility, such as WinXP Home Edition's Compressed Folders feature or WinZip. Make sure you extract the file to a folder located on the same partition as WinXP. If the downloaded file has an .EXE extension, double-clicking it will usually launch software that installs the Theme for you.

Right-click a blank space on the Desktop and click Properties. If you see the new Theme in the drop-down menu, select it. If not, select Browse from the drop-down menu, find the file (it should have a .THEME file extension), and click OK. To use the new Theme, click Apply.

■ **Plus! Themes.** In the Themes drop-down menu, you may have noticed the More Themes Online option, which launches http://www.microsoft.com/windows/plus. Don't get too excited. The Themes on this site are part of the Microsoft Plus! For Windows XP CD ($29.95 online). If you dish out the money for this CD, insert it and follow the on-screen prompts to install Plus! Launch Plus! and click Themes. Click the desired Theme and Select This Theme to automatically launch the Display Properties dialog window. Make sure the new Theme is selected in the drop-down list and click OK. LS

by Kylee Dickey

Design Your Own Desktop

Put on your imaginary artist's smock and get ready to design your own Desktop Theme. Right-click an empty space on the Desktop and click Properties. From the drop-down list under the Themes tab, select any existing Theme, which you'll use as the foundation for your new Theme.

To create your own Wallpaper, click the Desktop tab, click Browse, find an image file (such as a JPEG [Joint Photographic Experts Group] of your children), and click Open. If you'd also like to change your Desktop icons, click Customize Desktop. Click the icon you want to change and click Change Icon. Select an icon from the Change Icon dialog box or click Browse and find your own icon. Click Open and OK. When you're done changing wallpaper and icons, click Apply.

To create your own screen saver, click Start, My Pictures, File, New, and Folder. After naming the folder, click and drag all images you want in your screen saver to the new folder. Return to the Display Properties dialog box, click the Screen Saver Tab, and click My Pictures Slideshow in the Screen Saver drop-down list. Click Settings and Browse. Then click the folder you just created and the next three OK buttons.

To change the Color Scheme, click the Appearance tab and Advanced. If you select Windows XP Style from the Windows And Buttons drop-down menu, you'll have three Color Schemes from which to choose. If you select the Windows Classic Style, you'll get many more options. When you're done, click Apply.

To complete your Theme, click the Display Properties dialog box's Themes tab and Apply. Click Save As, type a new Theme name, and then click Save and OK.

Face The Music

Play Your Favorite Tunes With WMP

You probably hear a lot of cheesy music while working at your office computer. There's no need to associate your home PC with instrumental renderings of Air Supply tunes, though. WMP (Windows Media Player) lets you play songs, tune in to streamed Webcasts, and even design your own customized playlists. Forget easy-listening office music. It's time to rock and roll (or, if you prefer, waltz or country line dance).

■ **Downloaded vs. Streaming Media.** Launch WMP by clicking Start, All Programs, and Windows Media Player. If you see a small skin rather than the full WMP screen, you're in Skin Mode. To switch to Full Mode, right-click the skin and click Switch To Full Mode. You'll also need to see the toolbar, which includes Now Playing, Media Guide, Copy From CD, Media Library, Radio Tuner, Copy To CD Or Device, and Skin Chooser. If you don't see these options, click View, Full Mode Options, and Hide Toolbar (to deselect). If the menu bar is hidden, click the small icon in the top-left corner of WMP, the one with up and down arrows.

Once you are ready to use WMP, you'll find there are two types of music files online: downloadable media and real-time, streaming media. WMP cannot play a downloadable file until the entire content has been saved to your hard drive. This means you'll have to wait while your PC downloads the file before you can listen to it. On the other hand, WMP broadcasts streaming media live as it receives the data from the remote server.

You can use a browser such as Internet Explorer to search online for music files. You can also click the Media Guide button on the toolbar to search WMP directly. This launches WindowsMedia.com (http://www.windowsmedia.com) in the WMP window. Take note that the files on this site are not full-length songs but 30-second samples. You may need to maximize the window for easier navigation of the site. If you do not see the menu bar and its Maximize button, right-click the WMP screen and click View Menu Bar.

You can use the search box on the upper-left side of the screen to search for artists or song titles at WindowsMedia.com. If you click the link to a search match, you'll see a list of playable files. The number to the right of each song title indicates the minimum connection speed required to listen to the file. Click the appropriate connection speed to listen to the streaming media file using WMP. You may need to wait a few seconds while the file is **buffered** (written to your computer's temporary memory). Check the lower-left corner of the window to see if WMP is Connecting To Server, Buffering, or Playing.

When you click a file that's in a nonstreaming format, such as WAV or MP3, your PC will download and save the file. After the download is complete, WMP should automatically start playing the file. If you'd like to play a sound file that you've already saved on your hard drive or other storage device, click the File menu, Open, and the Browse button. Locate the downloaded file you wish to play and click Open.

■ **Power Play.** When you're hard at work (or play) at your computer, it's distracting to continually stop your work and start a new song. You can create entire playlists on WMP. Click Media Library and New Playlist (located under the menu bar). Type a name for your playlist and click OK. This new file will appear under the My Playlists folder in the window's left frame.

To add a file to your playlist, you must first add it to your Media Library. You can do this in three ways:

- Start playing the track (as described above). Click File, Add To Media Library, and Add Currently Playing Track.
- Click File, Add To Media Library, and Add File. Browse the files on your hard drive and removable media until you locate the desired file. Click to highlight it and click Open.
- Click File, Add To Media Library, and Add URL. Then type the URL (uniform resource locator) in the Open box and click OK.

To add a song to a playlist, click the All Audio folder (in the left frame) to view a list of sound files (in the right frame). Click and drag the desired sound file to the appropriate playlist in the left frame. To alter the playlist order, click and drag a track to the desired playlist position. When you are done designing your playlist, double-click it to start playing your custom music lineup.

It seems there's always one pesky song that gets stuck in your head while you're at your computer. Now with your own playlists and knowledge of WMP, you're equipped to drown out that song with your own choice of music. Working at your PC never sounded so good. LS

by Kylee Dickey

NetPlay: Internet Radio

If creating playlists isn't your cup of tea, you might enjoy Internet-based radio stations. Listening to an Internet radio station is like listening to the radio on a car or home stereo. You pick a station with programming you like, but you don't know the exact songs or artists you'll hear.

To get started, click the Radio Tuner button to launch WindowsMedia.com in the WMP window. You see a list of Featured Stations, such as NPR National Public Radio and House Of Blues Mojo Blues. If you click the arrow to the right of the station name, you'll see more information about the station's format. Click Play to tune in.

If you'd like to access an Internet-based station that isn't on the WindowsMedia .com page, click File and Open URL. Type or paste the radio station's URL in the Open field and click OK. For easy access to the radio station, click File, Add To Media Library, and Add URL. Once again, type or paste the station's URL in the Open field and click OK. To listen to the station, click Media Library and All Audio. Double-click the desired radio station.

Behind The Scenes

Create Videos With Windows Movie Maker

Affordable PCs and DV (digital video) camcorders put a video-editing studio within just about anyone's grasp. Making home movies can be fun, but editing that video can be intimidating for the uninitiated. You can dip your toe in the video-editing waters with Windows Movie Maker, a video-editing program included in Windows XP. Once you are comfortable with using Windows Movie Maker, you can move on to a heftier program. For now, let's see what we can do with this program.

The system requirements for Windows Movie Maker are very light. You will need at least a 300MHz Pentium II PC with 64MB of RAM and 2GB of free hard drive space, although Microsoft recommends users have a 600MHz Pentium III PC with 128MB of RAM. You should also have a video capture device, such as a video capture card installed in a PCI (Peripheral Component Interconnect) slot or an IEEE (Institute of Electrical and Electronic Engineers) 1394 port.

Windows Movie Maker is compatible with a variety of video file formats, including AVI (Audio-Video Interleaved), WMV (Windows Media Video), and MPEG (Moving Picture Experts Group) files. The program also supports several audio formats, such as MP3, WMA (Windows Media Audio), and WAV audio files. You can also import still images such as JPEG (Joint Photographic Experts Group), BMP (bit map), and GIF (Graphics Interchange Format) files, or even import slides from Microsoft PowerPoint into your flick.

The interface for Windows Movie Maker is not going to win any beauty contests. It has the familiar "Windows" look, with Menu and Standard toolbars. The interface has a Collections area for the folders containing your video clips. The Collections area is split into a left and right window-pane, with the folders in the left pane. When you highlight one of the folders, a thumbnail of the video clips within that folder appears in the right pane, which dominates the middle of the program interface. You will see a preview pane on the right side of the screen (called the Monitor) in which you can watch selected video clips or the entire video project.

To edit video clips, simply drag and drop them into the storyboard or timeline workspace, which runs along the bottom of the window. Click the small Storyboard/Timeline icon to the left of the workspace to switch between the storyboard and timeline views.

The storyboard view is ideal for organizing video clips. The timeline view displays the duration of each video clip. You can trim the length of video clips and add a cross fade transition between clips when working in the timeline view, which we will show you how to do later in this article.

■ **Corral Your Clips.** Obviously, you have to transfer the video from your camcorder to your PC before you can edit it. There are several methods of doing this, and some are better than others. Today's DV camcorders usually have an IEEE 1394 port built into them so you can quickly transfer the digital video directly into your PC, which is much faster and easier than transferring video into your PC through an analog device such as a video capture card. You can use Windows Movie Maker to import video into your PC using either an IEEE 1394 connection or an analog device. We strongly recommend using a DV camcorder with an IEEE 1394 port.

To begin, click the Record icon in the toolbar. This opens the Record dialog box, where you can choose the quality at which Windows Movie Maker will capture the video from your camcorder. You can select Low Quality, Medium Quality, or High Quality from the Setting drop-down menu.

We prefer to capture video using the High Quality setting, which is the default setting. Set up your camcorder to begin playback, press Play, and click the Record button under the preview window, to the right side of the Record dialog box. Click the Stop button when you are done recording. Windows Movie Maker will process the video and ask you to type in a name for the video clips you captured. The video clips will appear in a folder in the Collections area.

■ **Nip & Tuck.** Now that you have a good collection of clips to work with, it is time to stitch them together into a single video. It is best to use the storyboard view when arranging clips. When working in storyboard view, the workspace area along the bottom of the screen will look like a blank strip of film. Now, click one of the folders in the Collections pane to see the video clips within that folder. The clips will appear in the middle windowpane.

To rearrange clips in the storyboard, click and drag a clip to a new position. If you want to preview a clip, click it in either the middle windowpane or the storyboard. Your clip is then loaded into the monitor along the right side of the window. Click the monitor's Play button to see the clip. To preview the entire video project, you will need to click an empty part of the storyboard and then click the Play button in the monitor. If you want to see a video in full-screen mode, simply click the monitor's Full Screen icon (click the Play button first). When you are done watching the clip in full-screen mode, click your mouse to return to the Windows Movie Maker interface.

The storyboard view is used for the easy part of video editing—selecting clips and arranging them in the right order. The timeline is a little more advanced. There are several ways you can edit video clips in the timeline view. For example, you can trim the size of a clip, split a clip in two, combine two clips, add a fade transition between two clips, and add audio effects to a clip.

The timeline view displays the duration of each video clip. The longer the clip is, the more room it will take up in the timeline workspace. As with the storyboard view, the first frame of the clip is displayed as a thumbnail. You can zoom into or out of the timeline workspace by using the Zoom icons. The icons appear to the left of the workspace.

Zoom into a video clip to see a shorter piece of the video project, for example a 24-second section (the hours, seconds, and minutes are displayed in a time scale bar just above the timeline workspace). You can zoom out to see a longer section of video, such as 3 minutes or even an hour or more. Usually, you will zoom in to a small section of video, such as 1 minute or less. This makes it easier to adjust the length of a particular video clip. Besides, you want to make sure you adjust the clip to exactly the right length, which is difficult to do when you zoom out.

You can adjust the length of a clip by moving the clip's trim points. Each clip will have a Start Trim point and an End Trim point. In the timeline view, click a video clip to select it. Two small gray triangles will appear in the time scale above the clip; one at the beginning of the clip, and one at the end. Move the mouse cursor over one of the triangles and click and drag the trim point to shorten the video clip. The monitor displays the image that corresponds to the position of the trim point, so you'll always know exactly where to cut the video clip.

If you are working with an especially long video clip, you may want to split it. Click the clip to select it and then click the point in the time scale above the clip where you want the split to occur. Next, click Clip in the menu bar, followed by Split. You can also combine two clips if you like. Press and hold the SHIFT key while clicking two adjacent video clips. Choose Clip from the Menu bar, and then click Combine.

If you want to try your hand at editing video and you have Windows XP, check out Windows Movie Maker. The Movie Maker interface looks plain, but is fairly easy to use.

■ **A Dash Of Flash.** Now that the clips are arranged and trimmed to the appropriate length, it is time to add a little flash to your video project. Most video editing programs include a lot of transition effects and titles you can add to your video, something Windows Movie Maker sorely lacks. Windows Movie Maker does include a fade transition, however, and it is really easy to use.

Simply click a clip in the timeline view and drag it to the right or left so it slightly overlaps an adjacent clip. When you play back the video at the point where the overlap occurs, the first clip will fade out as the second fades in. It is a nice, simple effect that will add a little flair to your video. Don't get carried away with it, however. You will not need a transition between each scene.

Windows Movie Maker does not include title effects, but that does not mean you cannot include titles and credits in a Windows Movie Maker video. You can create a bit-mapped image in a separate program, such as Microsoft Paint, and import it into your video.

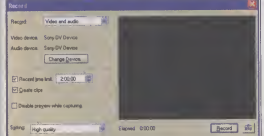
Production Notes

Windows Movie Maker is not a bad program to use if you're just beginning to edit home movies. However, several video-editing programs include a lot of extra features you won't find in Windows Movie Maker, such as transition effects, titles, special effects, and advanced audio controls. The one advantage Windows Movie Maker does have is its price. It's free with WinXP, whereas a good video-editing program can cost anywhere from $50 to $550. As you can see, Windows Movie Maker lacks some of the key video-editing

	Price	Add transitions between scenes	Add MP3 files to video	Create titles within program	Automatically capture several video clips from one tape (Batch Capture)
Windows Movie Maker	Free	Yes (one transition style available)	Yes	No	No
Ulead VideoStudio6	$99.95	Yes	Yes	Yes	Yes
Adobe Premiere	$549 (upgrade $149 - $199)	Yes	Yes	Yes	Yes

You'll have to use a separate program to convert your favorite CD single to an MP3, but once the MP3 is stored on your computer, you can import it just as you would a video or still image.

To create a simple title in MS Paint, create a dark background and use the text tool to type in a name, such as "Peggy Sue's Wedding," for your video project. Save the image and import it into Windows Movie Maker, just as you would a video clip. The image will be saved in one of the folders in the Collections area. Click and drag the image from the middle windowpane to the beginning of the video project. To adjust the length of time the image will be displayed, click and drag the image's End Trim point to the right or left. You can, of course, insert still images into any section of your video project.



Windows Movie Maker makes it easy to capture video to your PC from a DV (digital video) camcorder.

We have covered all the video-editing tricks you will need to know when using Windows Movie Maker, but a video without a sound track is like a pizza without cheese, or mushrooms anyway. The audio options in Windows Movie Maker are rather limited and somewhat buggy, but with a little patience, you can add a decent audio track to your video project.

The most practical way to add music to your video in Windows Movie Maker is to import an MP3 track. You'll have to use a separate program to convert your favorite CD single to an MP3, but once the MP3 is stored on your computer, you can import it just as you would a video or still image. First, make sure you are in the timeline view. You will see the Audio bar just below the timeline workspace. Highlight the folder in the Collections pane that contains the audio track you want to use. The audio track will appear in the middle windowpane. Click and drag the audio track to the audio bar.

You can position the audio track anywhere along the timeline. To adjust the length of the audio track, simply drag the track's trim points to the right or left, just as you would when trimming a video clip. You can also add more than one track to the video project. You can overlap the tracks, but unfortunately you cannot create a fade effect between two overlapping tracks.

Many users record audio, as well as video, when using their camcorders. Windows Movie Maker includes a tool to balance the volume between the audio captured on the video track and the audio you add to your video project. Click the Set Audio Levels icon located in the lower-left corner of the program. Move the slider to the right to increase the volume for the audio track you added or to the left to increase the volume for the audio that you captured when you filmed the video clip. If you move the slider all the way to the right, you will only hear the audio track you added. The audio captured with the video will be muted. However, we noticed this tool was a little buggy. The video's audio track would still play occasionally even when we moved the slider all the way to the right.

■ **That's A Wrap!** Now that we are done editing the video project, it is time to convert it to a movie. This is a pretty simple process. First, click the Save Movie icon in the toolbar. This opens the Save Movie dialog box where you can determine the playback quality of the movie. Click the Settings drop-down menu in the Playback Quality section of the dialog box. You can choose from Low Quality, Medium Quality, High Quality, or Other.

If you choose Other, you can select a quality setting from a long list of profiles, each with slightly different resolutions, frame rates, and file sizes. The Low or Medium quality settings are preferable for email and Web applications because the file sizes are relatively small, which means they will be easy to download. You do not want to clog up your friend's email box with a 30MB video, and users with a 56Kbps (kilobit per second) modem will not be inclined to watch your video if it takes four hours to download it. Type the title of the movie in the Title text field and click OK. Windows Movie Maker will save your video project as a WMV file.

You probably won't win an Oscar for Film Editing if you use Windows Movie Maker, but it is a good way to become familiar with the video-editing process. You will probably yearn for a more powerful program after you edit a few videos, but you should learn to hop before you learn to fly, grasshopper. LS

by Michael Sweet

features found in Ulead's VideoStudio6 (http://www.ulead.com) and Adobe's Premiere (http://www.adobe.com), two popular video-editing programs.

Prepare video for DVD recording	Composites (Blue Screen special effects)
No	No
Yes	No
No	Yes

Digital Camera Incompatibilities

Work Around Windows XP Digicam Problems

The 1990s versions of Windows were ill equipped to handle the demands of digital imaging. Windows XP is packed with features that directly target digital photography buffs. But, as some disgruntled users are learning, not every digicam works with WinXP.

If you have a fairly new camera, it should work fine with the WinXP operating system. Most problematic cameras are older models that do not receive much manufacturer support. Regardless of the age of your digicam, understanding the way WinXP interacts with your digicam will help you troubleshoot future problems. Read on for some brief insights.

■ **WinXP & USB Digicams.** Almost every camera connects to your PC using a USB (Universal Serial Bus) cable. Doing so lets you download images from the camera's memory onto your PC's hard drive, where you can manipulate your photos in any number of ways.

Problems in this transfer process arise because there are a lot of different camera makers and many camera models. That means WinXP needs a way to communicate with a plethora of products.

Mike Coleman, a product manager on the WinXP team, explained to us how WinXP interacts with USB-enabled digicams. "There are two ways a camera can identify itself to Windows XP," says Coleman. Both methods are relatively transparent to the end user, but it helps to understand the differences. "One is using the Picture Transfer Protocol, or PTP," he says.

This protocol provides a standard specification for manufacturers, so they don't need to create a special driver. As a result, PTP lets users switch between different cameras with fewer driver conflicts. For cameras that are PTP-compliant, WinXP launches the Scanner And Camera Wizard to help you download and use your images.

An older, more generic method, according to Coleman, is for a camera to identify itself as a mass storage device. In this case, the camera appears under My Computer as a removable drive. WinXP recognizes the camera as a device that contains images, but WinXP doesn't automatically start the Scanner And Camera Wizard.

If you connect your camera and it is not recognized as another drive (and the Scanner And Camera Wizard does not appear) you will need to do some experimenting. Start by searching for an updated camera driver.

■ **Update Your Driver.** If you have a popular camera, chances are the manufacturer has created an updated driver to help the camera communicate with WinXP. Visit the manufacturer's Web site and look for a Downloads, Software, or Support page, which is where most drivers are stored. Then simply download the driver, and in most cases, double-click the file name to make the new driver install automatically.

If you don't see a driver that's specifically designed for WinXP, you may find a driver for another recent Windows version, such as Windows 2000. Using a similar drive may help your camera work with WinXP. Contact your camera maker before using a driver that's not specific to WinXP, though. Representatives may advise against installing the software, and they may be able to inform you as to the status of a WinXP driver—some companies are just slow to release new drivers, while others do not plan to provide WinXP support for older cameras at all.

If you use more than one type of flash card, you may want to invest in a reader that is compatible with multiple card types. This Dazzle reader is compatible with six different cards.

If your camera falls into the "totally unsupported" category, don't lose hope yet. There's a simple workaround that will help you squeeze more life from your aging digicam.

■ **Flash Card Readers.** Your camera is not the only piece of hardware you can use

to download photos to your PC. In fact, many photographers eschew camera transfers altogether, opting instead for the speed and convenience of a flash card reader.

Flash card readers come in all shapes and sizes, but they all have one or more slots for flash media. These slots let you insert your camera's flash card and quickly transfer photos to your hard drive.

These days, most readers connect to a USB port, which lets you transfer image files at about 12Mbps (megabits per second). If you have a very recent computer equipped with high-speed USB 2.0 or IEEE (Institute of Electrical and Electronic Engineers) 1394 (FireWire is Apple's version) ports, you can find equally fast readers suited for huge image files; these technologies let you transfer data at maximum speeds of 480Mbps and 400Mbps, respectively.

An example of a typical USB card reader is the SimpleTech (http://www.simpletech.com) STI-UCF100 CompactFlash Reader. To use this reader, connect it to a USB port, where it is detected as a mass storage device. After a quick setup process, insert the memory card and you'll be downloading your images in just moments.

If you use a lot of different flash cards and don't want an external reader that connects using a cable, you're not out of luck. You can also buy an internal reader to install in the case of your PC. The Internal DigiDrive, from Addonics (http://www.addonics.com), fits into a 3.5-inch drive bay and comes equipped with four separate card slots.

You might think that investing in a card reader is frivolous for a camera past its prime, but for far less than $100, most readers are extremely affordable. There also are a number of other advantages to using a flash card reader, especially when you realize that your camera isn't optimized to function as a file transfer device.

■ **Reader Pros.** Tethering, or connecting your digicam directly to your PC for file transfers, has a number of disadvantages when compared to a flash card reader. First, transferring photos with the camera means your camera must be turned on. This consumes precious battery life, and on antiquated cameras that use only AA cells, this technique quickly becomes costly. If your camera uses a rechargeable lithium-ion battery, the cell will wear out more quickly from constant charging.

This internal flash card reader from Addonics slips neatly into your PC's 3.5-inch drive bay.

Second, your camera wasn't specifically designed to quickly transfer files. Because card readers are designed for data transfer, they're optimized for speed. In most cases, they'll transfer images much faster than your camera.

Finally, having such a reader means you can use your memory card as a portable storage device for any kind of data you want. Although your camera only uses image files, the memory card can actually store any kind of data you want, such as text documents or even music files from your MP3 player.

■ **Reader Wrap-up.** If you are ready to splurge on a new digicam, perform a camera keyword search on Microsoft's Hardware Compatibility List (http://www.microsoft.com/hcl) first. This will help you confirm camera models that work with WinXP. If you're still longing to use your elderly camera, remember that reasonably priced readers are a budget-friendly way to extend your camera's life. LS

by Nathan Chandler

Readers For Your Digicam

If your digital camera refuses to work with Windows XP, there's an affordable and efficient way to sidestep the problem—buy a flash card reader that connects directly to your PC's USB (Universal Serial Bus) port. To use a reader, just pull the memory card from your camera and insert the card into the reader's slot. This sidesteps the camera's compatibility problem and makes your file transfers quicker, too.

Product Name	Price	Company Information	Connection/Features
Dazzle 6 In 1 Reader	$50	SCM Microsystems; http://www.dazzle.com; (888) 212-8045; (510) 360-2300	USB; reads six card types
Atech Pro II Media Reader	$50	Atech Flash Technology; http://atechflash.com; (510) 979-0666	USB; large reader compatible with six card types; holds three cards at once
Addonics Internal DigiDrive	$69	Addonics Technologies; http://addonics.com; (800) 787-8580; (408) 433-3899	Internal; fits into your PC's spare 3.5-inch drive bay; reads seven card types; has handy USB port
CompactFlash Reader/Writer	$43	Kingston Technology; http://kingston.com; (877) 546-4786; (714) 435-2600	Parallel; CompactFlash reader/ writer works via parallel port
Memory Bank 2.0	$60	IOGEAR; http://www.iogear.com; (888) 999-2836; (949) 428-1111	USB 2.0; transfers CompactFlash card data at USB 2.0 speeds
FireWire Reader*	$100	Lexar Media; http://www.lexarmedia.com; (800) 789-9418; (408) 848-2749	FiraWira; transfers CompactFlash card data at IEEE 1394 speeds

*Not specifically listed for WinXP as of press time.

The Ingredients For Better Media Searches

Learn To Edit Your Media Metadata

After misplacing one CD too many, you started saving music on your PC. It seems you can still lose music, though. You don't remember the file name of a Fleetwood Mac song; a Windows XP Search for Fleetwood Mac turns up nothing. The problem might be incomplete metadata.

■ **Data For Data.** Metadata is data about data. In the case of media files, the metadata generally contains information such as artist, song or video title, and album. This media data is visible in most media players, as well as in the file's properties.

To play an MP3 file, the only data your media player really needs is the actual MP3 file. However, you might want to know whose glorious voice is drifting out of your PC's speakers. You might want to search for the file by artist or album name. This information is the metadata, which is secondary to the file's actual function (to play music).

Let's say you downloaded a Beatles song, but now you can't remember its file name or where you saved it. Unless the word "Beatles" is contained in the metadata or the file name, WinXP won't know the difference between the Beatles song and an Ozzy Osbourne song. On the other hand, if your Beatles file contains accurate artist information in the metadata, a WinXP Search for Beatles will produce the file, even if the file name is Birthday.MP3 rather than BeatlesBirthday.MP3.

What happens if the metadata is inaccurate? For example, say you downloaded a song from the music group Alabama. Later you search for Alabama but get no search results. After tirelessly double-clicking folder after folder in Windows Explorer, you finally find the lost Alabama media file. You discover that the metadata incorrectly lists the Artist as The Oak Ridge Boys. Aha! That explains why WinXP couldn't find any songs by Alabama.

You can edit the metadata so you can easily find the Alabama song the next time you look for it. Use Windows Explorer to find the media file (in this case, the Alabama song) on your system. You may actually see thumbnail images of the album artwork. Those images are also part of the file's metadata. To view the file's other metadata, right-click the file icon, click Properties, then the Summary tab, and the Advanced button. You'll see several file properties listed, including Artist, Album Title, Year, Track Number, Genre, Lyrics, Title, and Comments. Other file properties are listed that you cannot edit, such as the Protected status and Duration.

To change an editable field, click the portion of the field that appears under the Value heading. Type in the new Value and press Enter. After editing the fields, click OK. Although metadata proves very useful, remember that if you edit metadata, leaving it incomplete or incorrect can make it difficult to find your files using a WinXP Search. Also, note that WinXP is the only version of Windows that lets you edit media metadata from Windows Explorer.

■ **More Metadata.** Individual songs and videos aren't the only files to contain metadata. For instance, WMP Playlists are actually metafiles (collections of metadata about the Playlist tracks). (For more information about creating Playlists, see "Face The Music" on page 116.) A Playlist has an .ASX extension and contains metadata, such as the Album name, Track title, Artist name, and file path to the media's location on your hard drive. If the track is streaming media, the metafile will include the URL (uniform resource locator) of the media.

Let's say you add a music file in your My Documents folder to your WMP Media Library. A week later you use Windows Explorer to change the metadata. You change the Genre from Pop to Rock. When you access the Media Library, though, the Genre is still listed as Pop. Why didn't it update after you edited the file's metadata?

Playlists are paths back to the original media, so they do not contain the media itself. When you edit a media file, Windows doesn't know to update the metadata in the WMP Playlist. However, if you update the metadata using WMP, Windows can access the file path from the Playlist and automatically update the main file's metadata.

To edit WMP metadata, click Start, All Programs, and Windows Media Player. If WMP isn't in Full Mode, right-click the WMP window and click Switch To Full Mode. Click Media Library. You'll see file properties, such as Title and Artist, listed at the top of the window. Use the scrollbar at the bottom of the Media Library screen to see the full list of file properties. You can edit the first four fields (Title, Artist, Album, and Genre). Right-click the field of the track you want to alter and click Edit. Type the new value in the field and press ENTER.

Because the Media Library's Playlists are metafiles containing the file path of the original media file, any changes made in the Media Library will apply to the main file, as well. To see the changes, find the file in Windows Explorer, right-click it, click Properties, click the Summary tab, and click the Advanced button.

You can also pull metadata for most CDs off the Internet using WMP. To do so, insert an audio CD and click WMP's Copy To CD toolbar. Click Get Names. WMP will connect to the Internet and use the CD's built-in metadata to locate album information, which it will display in the WMP window. If the information is correct, click Finish. Each time you insert the CD, WMP will now list Album title, track Titles, Artists, and Genres. LS

by Kylee Dickey

The Boob Tube Comes To Windows XP

New Support For Digital Television

Ever gotten a neck cramp from turning between your television and your computer? That assumes you have a television within viewing distance of your PC. If your computer is in an entirely different room, you have no way to watch your favorite show while you catch up on email or watch the big game and instant message an old friend. Adding TV features to your PC adds an entirely new dimension to your trusty desktop.

TV tuner cards have been around for years. By sliding a PCI (Peripheral Component Interconnect) card into your system and plugging your antenna, cable, or satellite system into the card's inputs, you can watch television on your computer. With Windows XP, however, Microsoft has made it easier for manufacturers to produce tuner cards with more features. In addition to simply watching television, you can use interactive channel guides to locate your favorite program and schedule your PC to record your favorite shows. When your in-laws call, you can pause your favorite program so you don't miss anything and even send the program from one PC to other PCs on your LAN (local-area network).

In addition to adding new features, WinXP includes support for the next generation of television broadcasts. DTV (digital television) promises sharper, smoother images and better sound than current analog broadcasts. The much-hyped HDTV (high-definition television) is one subset of DTV formats that WinXP supports.

■ **The ABCs Of APIs.** WinXP supports these new features through the use of APIs (application programming interfaces). That means that WinXP doesn't include specific applications for watching television, but it makes it easier for hardware manufacturers to write such software by including components that programmers can use when writing the software.

An API does the grunt work for a program. The Open File dialog box found in most applications, for instance, is an API. The code to describing how the dialog box works and what it looks like is located in a DLL (dynamic-link library) file. Software developers access this code through an API. Not only does this save time, it also saves hard drive space because developers don't have to include code for a custom Open File dialog box in their applications. It also provides a more consistent look and feel for the user.

DirectX is a set of APIs used primarily for entertainment purposes. Direct3D is one API included in DirectX. Video card manufacturers design their hardware to be compatible with Direct3D. If a video game utilizes the Direct3D API, as well, the game will be compatible with all Direct3D compatible video cards. This makes it easier for a video game developer to support a wide range of video cards in its game.

APIs provide the foundation for all the television features in WinXP. For instance, the instructions to decode various digital and analog signals are accessed through APIs. The code for pausing live television, recording a show, or sharing content with another home PC are also included in APIs. All the hardware manufacturer has to do is properly use these APIs in its software and provide an interface for the user.

■ **Get The Picture.** Microsoft breaks down its APIs into receiving APIs and rendering APIs. Receiving APIs accept and decode the video and sound while rendering APIs draw the video frames on your display.

The two most important APIs on the receiving end include BDA (Broadcast Driver Architecture) and DirectX VA (Video Accelerator). If the hardware can't describe the image it's receiving in terms the OS (operating system) can understand, the whole system breaks down before it even gets started. Software known as a driver helps the hardware communicate with the OS. BDA provides a number of components manufacturers can use to ease driver development. Support for digital, analog, and streaming media are provided by the BDA. BDA components are also compatible with the proper APIs.

Once the signal has been received, the PC needs to decode it. Without the use of special hardware, the system's processor would have to decode the signal. This naturally causes a reduction in system performance. The solution is to use special hardware dedicated to

decoding broadcast signals. Microsoft's DirectX VA sets the framework for using hardware acceleration. Although vendors can write their own hardware, third-party software can take advantage of the video acceleration hardware using DirectX VA.

■ See The Light. Once the signal has been received and decoded, it's time to render the video by drawing it on the PC's display. The DirectShow VMR (Video Mixing Renderer) draws the image on the display. The DirectShow VMR is the default renderer for WinXP and replaces the Overlay Mixer in older versions of Windows.

Among the features the DirectShow VMR provides are support for simultaneous playback on multiple windows, backward compatibility with existing applications, the ability to use added software to insert effects between video clips, and the ability for applications to add logos or controls on top of the image.

DirectShow VMR uses the graphics chipset to generate the image you see on your monitor. By using the graphics chip, your system's processor remains free to perform other chores.

■ Record Now, Watch Later. Now that we've seen an overview of how the APIs work, let's examine some specifics about what this means for you. We'll start with PVR (personal video recorder) technology.

PVRs, such as ReplayTV and TiVo, are becoming increasingly popular. These devices capture incoming video, convert the analog signal to digital if needed, and store the broadcast on a hard drive. The system is similar to a VCR but easier to use and more reliable. With the correct hardware, it's possible to use a PC as a PVR.

Capturing and storing video requires a software component known as a Video Port Manager. The Video Port Manager is responsible for capturing the incoming signal and saving it to the hard drive. In addition to recording previously scheduled shows, the Video Port Manager and WinXP APIs also let you pause live television. When instructed to pause a live feed, the PC begins saving video on the hard drive. Provided there's enough room available, the system will continue to capture video until you close the application or return to live television.

Another often-overlooked component to PVR technology is the channel guide. Using Microsoft's Guide Store as a foundation, applications can store program information. This information is handy for telling the computer what you want recorded and when. It's also much nicer than patiently watching the Preview Channel.

■ HDTV Demystified. Many early adapters who haven't gotten a gander at HDTV are likely enthused to hear about support for HDTV broadcasts in WinXP. If you're not up on your consumer technology, you might be wondering exactly what HDTV is all about. Take a close look at your TV set. A real close look. Notice those individual horizontal lines that compose your picture? The larger your TV set, the easier it is to see these lines. Now take a good look at your computer monitor. Can't see any lines, can you?

HDTV looks more like a computer monitor than your television. In North America, companies broadcast their signal using a format known as NTSC (National Television System Committee), which specifies 525 horizontal lines roughly 500 dots wide (although this can vary). By contrast, your computer monitor probably has a resolution of at least 640 x 480 (640 dots, called pixels, horizontally by 480 pixels vertically). Resolutions of 1,024 x 768 and higher are not uncommon.

Higher resolutions mean sharper, crisper images. The relatively low resolution of the NTSC signal is the reason you can only read the name on the back of a football player's jersey when the camera is in tight. If the camera zooms out even the smallest bit, fine details quickly become lost.

Resolution, however, is only part of the story. HDTV is strictly a digital broadcast. If you have regular cable or receive broadcast stations over an antenna, the signal your television receives is an analog signal. Most television sets today are made to receive these analog signals. Digital cable, digital satellite, and DVD video are digital in origin and require conversion to an analog format before they can be viewed on a standard television. This conversion takes place within the set top or the DVD player just before the signal is sent to the television. HDTV can recognize digital signals, directly helping to increase the picture quality.

It's important to note that HDTV is not a specific format or specification. HDTV denotes any format or specification that offers more than 480 lines of resolution. HDTV formats typically offer 720 or 1,080 lines of vertical resolution. There are currently about 18 different

The ViewSonic VPW500 Plasma display (right) features the 16:9 aspect ratio some DTV (digital television) formats use, while the ViewSonic E771 uses the more traditional 4:3 aspect ratio currently seen in analog sets.

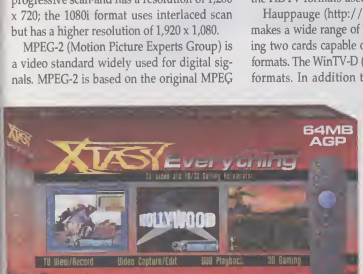
DTV formats. Some of these formats are HDTV while others are known as SDTV (standard definition television).

These 18 different formats can vary widely. Some formats specify a widescreen aspect ratio (shape of the display) of 16:9 others stick with the traditional aspect ratio of 4:3. Some formats call for an SDTV resolution while some call for an HDTV resolution. Some formats use progressive scan while other formats stick with an interlaced scan. Progressive scan refreshes (redraws) the entire image at the same time, while an interlaced scan only refreshes half the image at a time. Progressive scan typically provides smoother images, but interlaced scans cut back on bandwidth requirements.

One of the emerging formats is ATSC (Advanced Television Systems Committee). ATSC has outlined numerous SDTV and HDTV formats. In 1996, the FCC (Federal Communications Commission) adopted key ATSC elements. Canada, South Korea,Taiwan, and Argentina have all adopted ATSC.

Among the HDTV formats ATSC specifies are 720p and 1080i. The 720p format uses progressive scan and has a resolution of 1,280 x 720; the 1080i format uses interlaced scan but has a higher resolution of 1,920 x 1,080.

MPEG-2 (Motion Picture Experts Group) is a video standard widely used for digital signals. MPEG-2 is based on the original MPEG standard but provides higher resolution video and higher frame rates. In addition to DVD and satellite television, MPEG-2 is also used to encode video for PCs. The use of MPEG-2 in DTV makes the combination of the PC and the television even easier. The PC wouldn't have to convert the analog signal to a digital signal, and the television could play content directly from the PC without having to convert the signal to an analog format.



The VisionTek Xtasy Everything uses NVIDIA's Personal Cinema technology to save TV shows on your hard drive and pause live television.

■ **HDTV PC Hardware.** These different formats make selecting hardware difficult. In order to take full advantage of an HDTV signal, you need a monitor that can handle the higher resolutions associated with HDTV formats. Resolutions of 1,920 x 1,080 or 1,920 x 1,200 will work with the high-resolution 1080i formats. Most computer monitors use the traditional 4:3 aspect ratio. Programs in the 16:9 aspect ratio (widescreen format) can be displayed using black bars above and below the image, but you'll lose some quality in the process. Likewise, some cards let you output a video signal to a standard TV set. Remember, standard TV sets can't handle the higher resolution HDTV offers and can't work with digital signals. You can expect the image quality to be far from optimal, but it should still look pretty good. You'll also want to be sure your tuner card can support the HDTV formats used in your area.

Hauppauge (http://www.hauppauge.com) makes a wide range of TV tuner cards, including two cards capable of receiving ATSC DTV formats. The WinTV-D ($299) can receive ATSC formats. In addition to HDTV support, the WinTV-D includes digital audio out for Dolby surround sound, a remote control, and analog TV inputs. The newer WinTV-HD ($399) also receives ATSC formats and supports most of the features of the WinTV-D plus high definition output and S-Video (Super Video) input. The only feature the WinTV-HD is missing is the TV video out feature found in the WinTV-D. This feature outputs video from your computer to a standard TV set.

Hauppauge makes traditional tuner cards, as well as a line of PVR cards. The $249 WinTV-PVR 350 includes a hardware decoder for video, stereo sound, a remote control, and even FM radio features thrown in for good measure. The WinTV-Theater ($129) is a standard TV tuner card that supports Dolby surround sound.

Of course, when you think of TV tuner cards, most people think of ATI (http://www.ati.com). For years, ATI's All-In-Wonder video cards have provided users the ability to watch standard television on their PCs. In April 2000, ATI announced it would introduce All-In-Wonder cards with PVR capabilities. ATI's current high-end cards, the All-In-Wonder RADEON 8500 and 8500DV, include PVR features. Not to be outdone, NVIDIA has created its Personal Cinema line that adds PVR technology to its GeForce chipset. VisionTek's Xtasy Everything is one example of NVIDIA's Personal Cinema technology. NVIDIA's Personal Cinema uses an external unit to connect your TV signal to your PC and includes a remote control like the ATI All-In-Wonder RADEON cards.

■ **It's Not Just For PCs.** Many of the same television features built into WinXP are also included in WinXP Embedded. This stripped down version of WinXP can be installed on electronics with limited resources, such as set-top boxes cable and satellite TV companies use. In addition to WinXP Embedded, Microsoft is working on additional software for TV set-top boxes. Microsoft's Interactive Program Guide is already available on Motorola's DCT1000, DCT1200, and DCT2000 set-top boxes.

WinXP supports for digital television may be one of the more exciting video enhancements. The transition to digital television will happen at some point and the use of digital tuner cards might prove to be an important transition. Although digital sets have come down in price, they still remain rather expensive compared to most standard televisions. Currently, it's impossible to find a digital set for less than $1,500, and prices can be as much as $6,000. Digital tuner cards provide a more cost effective way for PC users to begin dabbling in HDTV. Add the extra features these cards provide, such as PVR functionality, and you can see just what kind of versatility that little beige box in the corner has. LS

by Chad Denton

Windows Picture & Fax Viewer

The Imaging Program For Beginners

Microsoft has stepped into the image-editing world with Windows XP. Among the many features of this OS (operating system) is the Windows Picture and Fax Viewer. Although not quite as extensive as other better-known image-editing programs, this applet gets the job done for your basic home user. Windows Picture and Fax Viewer lets you open images of all types, do basic editing, send images from your scanner or digital camera to your computer, and fax or annotate a fax document without requiring you to open or install a separate program.

■ **The Properties Menu.** Windows Pictures and Fax Viewer is the default image program for WinXP, which means that the program will automatically start when you open such items as pictures sent via email or saved in the My Pictures folder. To get to the Properties menu, you can either press CTRL-I or simply right-click the image you've opened. The Properties menu displays the properties of the image and lets you change the default program used to open the image, as well as some of the image's attributes.

The General tab includes a Type Of File field that gives the file extension for the image you are viewing. Only images in TIFF (Tagged Image File Format) format can be edited using the Picture and Fax Viewer. (For more information on editing TIFF images, see the "Annotation Toolbar" section later in the article.) The General tab also contains information about which program the image will open in, the size of the image, when the image was created, the last time it was accessed, and when it was last modified. (Note that opening the image without making any permanent changes to it won't change the modified time. The modified time only changes when you actually save the modifications you have made to the image.)

The file extension designates which program the image will open in. To change the program used to open a certain extension, while still in the Properties menu, click Change located in the General Tab. In the Opens With window, select a program from the provided list or click Browse to locate the program you are looking for. Remember, this will change the default program for all files with that extension, not just the image you have selected. To open only the selected image in a different program, right-click the image, select Open With and choose from the list provided or click Choose Program to locate the application you are looking for.

Attributes located at the very bottom of the General tab lets you restrict the image to Read-only, Hidden, or Archive. Read-only protects the image from being edited by anyone who doesn't have editing rights, Archive will save a backup copy of the image in a different location, and Hidden grays out the file's icon and name but has no effect on the actual image. Click Apply before you click OK to save the changes.

The Summary tab gives you the choice of viewing Simple information or Advanced information. The former includes the Title, Subject, Author, Category, Keywords, and Comments, whereas Advanced information includes the Width, Height, Resolutions, Bit Depth, and Frame Count of the image. When you access the Summary tab for the first time for an image, it will be blank. You can fill in these fields to help keep your images organized. For example, you may want to note that a particular image would be great to use as a holiday email message or note if an image is part of a sequence.

■ **Standard Toolbar, Including Shortcuts.** The Standard toolbar opens automatically when you open an image in the Picture and Fax Viewer. There isn't a whole lot to this toolbar, especially if you are looking to edit an image. If editing is of little interest to you but you like to play around with sizing and rotating images or creating slideshows, this toolbar may be right up your alley.

Flipping through. The arrows located on the far left will take you to the previous or following image in your folder. Pressing the Left or Right arrow on the keyboard accomplishes the same thing. To change the order that the pictures appear, simply go to My Pictures, open the correct folder, and drag and drop each image into the desired order.

Slideshow, anyone? The Slide Show feature lets you view the images in the folder in a slide show format. Start the slideshow by clicking the icon that resembles a TV screen or pressing F11 on your keyboard. A toolbar that lets you navigate through the images, pause or restart the slideshow, and end the slideshow will appear in the upper right.

The images will appear in the slideshow in the order you have them placed in the folder. The slideshow will begin with the image that is in the Picture and Fax Viewer window at the time the slideshow is started. To exclude certain photos from the slideshow, hold down the CTRL key and select all of the images you *do* want to appear in the slideshow. The images that are not selected will not be a part of the slideshow.

How big is too big? The Best Fit icon (CTRL-B) located to the right of the Right

Arrow icon adjusts the image to fit in the current size of the window. This comes in handy when the image is too large to see in its entirety or if the image is too small to make out certain details. To bring an image back to the original size, just click the Actual Size icon to the right of the Best Fit icon (or press CTRL-A).

To take a closer look at the detail of a picture, just click the Zoom In icon or the plus sign (+) on your numeric keypad until you can get the view you want. The Zoom Out icon or minus sign (-) on the numeric keypad will take the image back to its original size click by click. The applet, however, will not let you zoom out past the original size of the picture.

Round and round. You can rotate an image clockwise or counterclockwise by using the rotation icons found between the Zoom Out icon and the Delete icon. You can also press CTRL-K to rotate clockwise and CTRL-L to rotate counterclockwise. Some images cannot be rotated without diminishing the quality of the image. Don't worry about making this mistake without realizing it; Microsoft built in a warning that will pop up if you are walking on dangerous ground.

More icons. There are also a few standard icons on the toolbar we should mention. The Copy To (CTRL-S), Delete, Print (CTRL-P), and Help (F1) icons are on the far right of the toolbar. There is also an icon that has a tiny picture on it; this is your editing icon, which you use if you have installed a separate image-editing program and wish to use it on the image you have open in the Picture and Fax Viewer window. The editing icon will close out the current program and place the picture into the editing program of your choice.

■ **Annotation Toolbar.** With Windows Picture and Fax Viewer, you can only annotate faxes or a file in TIFF format. The Annotation toolbar, which lets you draw lines, add text, and highlight and attach notes to your files, will automatically appear in place of the Standard toolbar if you open a TIFF file.

The Annotation toolbar includes the same features as the Standard toolbar with a few added extras. Along with the arrows to view the previous or following image is the option to view the previous or following page, a useful feature for viewing fax documents.

Proofing options. You have the option of placing a straight line on the image or fax or drawing in freehand, which is great for circling important details. If you prefer to highlight instead of draw on the image or fax, the highlight option lets you highlight a portion of the document just as you would if you were using a pen.

The Windows Picture and Fax Viewer Standard Toolbar will automatically pop up when an image saved in the My Pictures folder is opened.

You also have the choice of drawing a frame of a box or a solid box on your image. Simply click the corresponding icon, pick a starting point on your image, and click and drag until the box is the size you want it.

The capital *A* that appears in the toolbar lets you draw a box for adding text. Once you have typed your text, clicking outside the box makes the box disappear but leaves the text on the image. If you prefer to have the text attached to the image in the form of a letter or note, use the Attached Note Annotation icon to the right of the *A* icon. This will leave the box on the image with the text inside.

Oops. To delete or edit any annotation features you may have added, simply double-click the feature to select it, right-click anywhere on the image, and select Edit Annotation Info or Delete Annotation.

■ **Bye Bye.** Once you have mastered Windows Picture And Fax Viewer, you may be itching to move on to a bigger and better image-editing program. You can use the Picture and Fax Viewer alongside another image-editing program, or you can turn off the Picture And Fax Viewer altogether. (To turn off the Picture and Fax Viewer you have to make a Registry change, so be careful. Registry changes can seriously affect the way the OS operates or disable it altogether. It is a good idea to create a backup file before you attempt any changes to the Registry. To learn how to create a backup file or a system restore point, click Help And Support from your Start menu.)

To find the Registry Editor, click Start, Run and type **regedit.exe** in the Open field. Then click the plus sign to the right of the following entries: HKEY_CLASSES_ROOT, SystemFileAssociations, Image, Shellex, and ContextMenuHandlers. Right-click ShellImagePreview, select Delete, and close the Registry Editor.

Have fun learning about Windows Picture and Fax Viewer, but keep in mind that down the road you may want to purchase an image-editing program that actually does some editing. LS

by Mary Lafferty

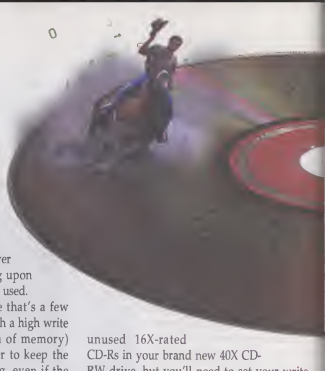
Helpful Shortcuts

Windows Picture and Fax Viewer contains some useful keyboard shortcuts that don't correspond to a toolbar button. Keep in mind that in order to move the annotation (editing marks or objects), it must be selected. To select an annotation, simply double-click it.

Shortcut	Action
Left arrow	Move annotation to the left one pixel at a time
Right arrow	Move annotation to the right one pixel at a time
CRTL-Left arrow	Move annotation to the left 10 pixels at a time
CTRL-Right arrow	Move annotation to the right 10 pixels at a time

Whoa, Hoss, Slow & Steady

Set CD-R Writing Speed

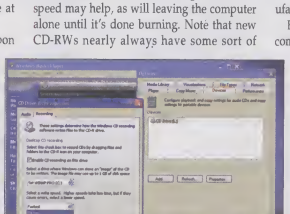


Although third-party software programs, such as Roxio Easy CD Creator and Nero Burning ROM, have more options for writing to CDs, it isn't hard to do with Windows XP's built-in Windows Media Player 8 and Windows Explorer. But, as nearly every computer user just getting started with CD burning (writing) comes to realize, there are a few pitfalls to avoid.

One major hazard is trying to burn a CD-R (CD-recordable) or CD-RW (CD-rewriteable) at a write speed that's too fast. Although you can reuse a CD-RW if you burn it incorrectly, any error when your drive is writing to CD-R will probably make the disc permanently unreadable. Such a useless disc is called a **coaster**, and it's a rite of passage to have at least one resting under your coffee mug.

A "safe" CD-R write speed depends upon your drive and the blank CD-Rs you put into it. CD-RW drive speeds are expressed in X values, where 1X is equal to 150KBps (kilobytes per second). For example, a drive that can write at speeds as fast as 40X can write about 6,000KBps, or 6MBps (megabytes per second), near the outer edge of the disc (the last songs on a full audio CD, for example).

Manufacturers sell CD-RW drives with three or four speed ratings, such as 40X/12X/48X. These indicate the drive's maximum CD-R write rate, maximum CD-RW rewrite rate (writing over existing data), and maximum read rate for CD-ROMs and CD-Rs, respectively. If there's a fourth speed rating, as in 40X/12X/48X/48X, the last one is the drive's maximum **ripping** rate. This expresses how fast the drive can read audio tracks from a CD so the host computer can convert them to files, such as MP3 or WMA (Windows Media Audio) files.



Microsoft built CD-R (CD-recordable) burning (writing) right into Windows XP, using software licensed from Roxio. You can set the burning speed in your CD-RW's (CD-rewriteable's) Properties dialog box.

■ **Brake The Burning.** WinXP doesn't have the most versatile burning utilities, but it does let you slow the writing process down if you start getting errors and coasters. For example, a 40X/12X/48X drive could throttle back to 32X, 24X, or lower CD-R write speeds, depending upon the type of CD-burning software used.

Sometimes, a CD-RW drive that's a few years old just can't keep up with a high write speed. Its **cache buffer** (area of memory) stores data from the computer to keep the fragile writing process moving, even if the computer is too busy to send data in a continuous stream. But if the computer is too slow or you're checking email and using a database at the same time you're trying to burn a CD, the stream of data may dry up. This is called a **buffer underrun**, and it will create a coaster in older drives. Burning at a slower speed may help, as will leaving the computer alone until it's done burning. Note that new CD-RWs nearly always have some sort of buffer underrun prevention technology, such as BURN-Proof or SMART-BURN. These suspend CD writing until data replenishes the buffer, then resume burning at the point of interruption.

You also would use a lower burn speed if you were using older discs rated for slower writing than your drive's top speed. For example, you can use up your existing stack of unused 16X-rated CD-Rs in your brand new 40X CD-RW drive, but you'll need to set your write speed to 16X or lower to avoid making coasters.

Sometimes, a newer drive automatically reverts to a slower burn speed if the disc is dirty or doesn't support higher speeds. If your drive is throttling itself back even with properly rated media, try different brands of blank discs. Start with the vendors your drive's manufacturer recommends.

By the way, if a disc is properly burned, a compatible optical drive can read it without caring what speed you used to write it. For example, a 52X CD-ROM can read a CD-R at a maximum of 52X, even if you burned the CD-R at 12X, 40X, or 2X speed.

■ **Setting The Speed.** To change CD-R burning speed in WinXP, click Start and My Computer. Right-click your CD-RW's icon and choose Properties. (You can also get to your drive's Properties window through Windows Media Player by clicking Tools, Options, and the Devices tab. Click your CD-RW drive to select it, then click Properties.) Next, click the Recording tab.

Near the bottom of the window, you'll see a field labeled Select A Write Speed. It will probably be set to "Fastest." Choose a slower speed, such as 8X or 4X for a 12X drive. Make sure the Enable CD Recording On This Drive box is checked and the Select A Drive field is set to a hard drive partition with at least 700MB of unused space. Finally, click Apply and OK, then refer to the "Music To Your Ears" article on page 104 of this issue for more tips on writing CDs in WinXP. Happy burning. LS

by Marty Sems

DVD Tips & Tricks

Get The Most Out Of Your Desktop Home Theater

For some movie fans, playing a DVD movie on a computer is their first exposure to high-quality movie viewing in the comfort of home. For others, DVD is old hat; they've been using DVDs for a long time, whether on their computers or in DVD players hooked up to their televisions.

Whether you're a neophyte or an old pro, there's always a new tip, technique, or tweak that can save time or enhance the quality of your experience. So, put some popcorn in the microwave, grab a DVD movie, and settle in for a hands-on series of tips. By the end, you may feel inspired enough to create your own DVD movies.

■ **Take Care Of Your DVDs.** The first step in getting the most out of a DVD player is taking care of your DVDs. Contrary to popular belief, DVDs aren't indestructible. Careful handling and storage will help extend their lifespan and keep them in top shape.

Clean your DVDs. DVDs are best cleaned with a lint-free, nonabrasive cloth. Dampen the cloth in clean, lukewarm water. (If your water is especially hard or contains excess minerals, use bottled water.) Starting at the center of the disc, wipe in a straight line to the outside rim; don't use a circular motion. Repeat until you've cleaned the entire disk. For very stubborn messes, try water with a mild, nonabrasive soap or isopropyl alcohol. Commercial DVD cleaning solutions are also available.

Never use compressed air to blow a DVD clean. Compressed air can be very cold and may thermally shock the disc, causing separation or cracks, either immediately or down the road.

Clean your DVD drive. There are few reasons to clean the lens on a DVD drive because disc rotation creates powerful air movement that keeps the lens clean. If you must clean the drive, use a cleaning disc designed for DVD players because CD and DVD pickup and lens systems have slightly different geometries.

Store DVDs. When you finish watching a movie, return the disc to its protective case. Never stack open discs on top of each other. Keep them away from heat and out of direct sunlight. The DVD specification recommends storing discs at a temperature between -20 to 50°C (-4 to 122°F), with less than 15°C (27°F) variation per hour, at relative humidity of 5% to 90%.

Handle DVDs. DVDs should only be picked up by the center hub and outer rim. Don't pry a disc out of its protective case; instead, push down on the button in the center of the case, then release. This should pop the disc up for easy removal.

Repair DVDs. Scratches can cause video artifacts and dropped frames. They can even prevent a disc from playing. This is rare, though, because DVD discs contain a significantly more substantial error correction system than CDs. If you need to repair a DVD, you can use one of two methods: Fill or coat the scratched area with optical material or polish down the scratch. Commercial products are available for both methods.

DVDs have a very thin protective layer. If you accidentally polish through this layer, you can damage the data. Polishing machines designed for use with DVDs are available but require caution. Because of the data depth problem, polishing with these machines can only be performed a few times before damage results.

■ **Play Your DVDs.** Playing a DVD on your computer may require a little more than just installing a DVD drive. You may need an updated DVD decoder or the additional features third-party playback programs offer.

DVD decoders. Windows Media Player can play DVDs, but only if a supported **DVD decoder** (a driver used to play back the encoded video and audio) is installed. To determine whether you have a DVD decoder, launch Windows Media Player, choose Tools, then Options from the menu. If a DVD decoder is installed, a DVD tab should be in the Options window.

Most DVD drives include a DVD decoder and an installation routine on a CD. The decoder is often installed as part of the installation of third-party DVD player software. Even if you plan to use Windows Media Player to view DVDs, you'll need to install the third-party player software first in order to install the decoder.

If your DVD drive worked correctly before you upgraded to Windows XP but now no longer functions, there's a good chance the DVD decoder isn't compatible with WinXP. Check with the manufacturer to see if an

Third-party DVD player software, such as CyberLink's PowerDVD, looks and acts much like a conventional desktop DVD player.

update is available. If not, you may be able to get a DVD decoder pack from a third-party supplier. A list of third-party decoders that work with many DVD drives is available on the Microsoft Web site at http://www.microsoft.com/windows/windowsmedia/windowsxp/dvdplay.asp.

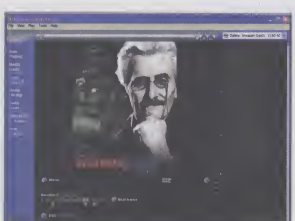
DVD playback programs. Windows Media Player is a fine program, but it's not the only game in town. Other programs are worthy of mention, as well.

WinDVD 4 from Intervideo ($49.95 to $99.95; free trial available; http://www.intervideo.com) includes a decoder and playback software. It also offers some of the best playback quality for viewing DVD movies, although playback is very dependent on your graphics card and processor speed. All things being equal, this player produces sharper images with less blur at full screen. WinDVD is also capable of processing as many as eight channels of sound (depending on your sound card capability). A frame capture utility is included for capturing multiple frames of any DVD movie.

PowerDVD 4 from CyberLink ($49.95; free trial available; http://www.gocyberlink.com) is a well-respected decoder and DVD player. The latest version adds significant new audio format support, bringing a full home theater experience to your desktop computer. PowerDVD supports Dolby Pro, Dolby Digital, DTS (Digital Theater Surround), Surround EX, SRS TruSurround, and other less common formats. PowerDVD can also play back DVDs stored on your desktop, something few other players can do because they usually look for a copy of the DVD disc to check for region codes.

Region codes. DVD movies are encoded for different regions of the world, so your DVD drive or decoder software must be set for the proper region. Depending on the type of drive you have, you may be able to change the region code as many as five times, only once, or not at all because it's hard coded. Hard-coded DVD drives for computers are rare but not unheard of. Some programs, such as DVD Genie (http://www.inmatrix.com), help you modify the region code of DVD players.

To set the region code, right-click the My Computer desktop icon, then select Properties from the pop-up menu. In the System Properties window, select the Hardware tab, then click the Device Manager button. Click the plus sign (+) next to DVD/CD-ROM drives, double-click the entry for your DVD drive, and select the DVD Region tab. From the scrolling list of available regions, select the appropriate entry, then click OK. Be sure that you've selected the correct region because some drives only let you do this once.



You may be able to use the Playlist in Windows Media Player to skip the ads and movie trailers.

Set the region code before inserting any DVDs. If the region code hasn't been set, some DVD drives will set it automatically, based on the first DVD that is inserted. If the first disc happens to be for a foreign region, the DVD region code will be set, and you may not be able to change it.

■ **Improve Playback.** Fine-tuning your settings can improve playback quality or speed. Minor changes, such as turning off background programs or turning up graphics or sound card acceleration, can make a significant difference.

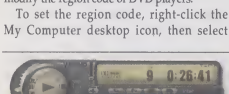
Direct memory access. To ensure optimal playback on your WinXP machine, your DVD drive should be configured to send data to your computer using DMA (direct memory access). DMA lets data be transferred without involving your computer's processor. This can produce dramatic results when viewing DVDs.

To ensure DMA is enabled, right-click My Computer, then select Properties from the pop-up menu. In the System Properties window, select the Hardware tab and click the Device Manager button. Find the entry labeled IDE ATA/ATAPI Controllers, click the plus sign next to it, and select the IDE (Integrated Drive Electronics) channel your DVD drive is attached to, if known. If you don't know the IDE channel, perform the following task for both channels. Right-click the IDE channel, select Properties from the pop-up menu, then select the Advanced Settings tab. Use the drop-down menu to change the Transfer Mode to Use DMA If Available.

Eliminate unneeded processes. If your computer is an older model, you can improve DVD playback by eliminating running applications other than the DVD player, as well as by shutting down background tasks such as scheduling and antivirus software. This helps squeeze out as much performance during DVD playback as possible. Newer computers with faster processors and adequate memory may not see an improvement with this technique.

Hardware decoders. When DVD drives first began appearing for PCs, they usually came with, or offered as an option, a special hardware-based DVD decoder card that plugged into a PC's expansion port. These cards were almost a requirement because software-based decoders couldn't keep up with the demands of a DVD system. That was then, and this is now. Today's fast processors and ample memory let software-based decoders work as well as, and sometimes better than, older hardware-based units. If you have a current system, the software-based decoders should work fine. If you're trying to add DVD playback to a marginal system, consider acquiring a hardware-based decoder. Some video graphics cards include hardware-based DVD support, so upgrading your video card may be a good place to start.

Desktop resolution. Optimizing video card resolution can enhance DVD movie playback. If you're experiencing stutter or dropouts, try setting your video card to 800 x 600 with 16-bit color. If this improves playback, try upping the resolution to 1,024 x 768. Video cards have an optimum setting for best performance, so experiment with different resolutions. The color depth setting doesn't affect the colors you see when playing a movie, but setting it too high or too low can cause color display problems and excess processing by the video card for no real benefit.



WinDVD displays all controls in the familiar standard DVD player format. You can also add extra skins to modify the controls.

Graphics card acceleration. Many graphics cards include hardware acceleration options. Acceleration options are usually enabled by default, but because they may have been changed along the way, it's best to check that your graphics card is ready to rock. Right-click the Desktop and choose Properties from the pop-up menu. Click the Settings tab, then click the Advanced button. Select the Troubleshooting tab and set the Hardware Acceleration slider to Full. If you have an option to enable Write Combining, do so. This lets the processor write to the card faster.

Sound card acceleration. Most newer sound cards have built-in acceleration to optimize performance. Sound cards also have sample rate options, that is, how fast the sound will be sampled and converted from digital format to analog audio. To adjust these settings, click Start, then Control Panel. Double-click Sound and Audio Devices, select the Audio tab, and click the Advanced button under Sound Playback. In the Advanced Audio window, select the Performance tab. Set Hardware Acceleration to Full and Sample Rate to Best and click Apply to save your changes.

DVD authoring software, such as Ulead Systems' MovieFactory, puts you in the director's chair.

■ **Miscellaneous.** There's more to enjoying a DVD than hitting the Play button. You can take a screen shot, skip the ads and movie trailers, or choose your favorite screen format.

Screen shots. Taking a screen shot of a DVD movie with standard desktop utilities may not produce the image you expect. Screen capture utilities grab the content of your graphics card memory; DVD players use hardware acceleration to bypass graphics memory and write straight to the video card's output.

It's possible on some systems to capture a screen shot of DVD video, but first the DVD decoder must have hardware acceleration disabled. Most decoders will then write the video data directly to the graphics card memory, which should allow you to take a screen shot. It may also cause a loss of video playback quality or the occasional dropping of video frames.

Avoid ads and trailers. Many DVD movies disable the skip and fast forward options, leaving you stuck watching trailers for future releases or embedded ads. You can circumvent this tactic by adding a bookmark. Most DVD player software supports bookmarking scenes, so you can easily return to them at a later date. This won't help the first time you view a movie, but it will work on any subsequent viewing.

The first time you view a movie, place a bookmark where the movie begins. The next time you watch the movie, use the Go To Bookmark function to jump past the commercials and trailers.

Windows Media Player can also help you get past unwanted sections. In the Playlist, you'll see a list of Titles and Chapters for the disc currently in your DVD drive. If you select the Play button, you'll start at the beginning of the disc where the Fast Forward and Skip controls are disabled. If you use the Playlist to select the first title and chapter, the DVD should start at the beginning of the movie, past the ads, rating warnings, and copyright violation notices.

Widescreen format. DVD movies can be in 4:3 format, which means the movie is 1.33 times wider than high, the same ratio used on standard televisions. Or they can be in 16:9 format, also called widescreen, which is 1.78 times wider than high. Widescreen is a common format for movies produced for theatrical release. DVDs can store either format and may contain both versions on a single disc, usually a dual-layer disc (data on both sides). Playing a widescreen movie on a standard television can produce distortion because the image is compressed to fit. Fortunately, DVD players offer a couple of ways to reproduce widescreen movies on a television.

Letterbox retains the same aspect ratio seen at the theater by adding mats or black bars at the top and bottom of your TV screen. **Pan and Scan** keeps the same ratio as your television but removes parts of the image. Think of a picture frame placed over a large image, letting you see only what falls within the opening. The frame can be moved around to focus on the action.

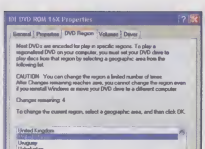
Letterbox is generally preferred because it retains the image as the director intended it to be seen. If you have a small monitor, the Letterbox version can be very small and difficult to see. In that case, try the Pan and Scan version, if available. If you're only able to see either a Letterbox version or a standard TV image and you want the other format, try turning your disc upside down. Some disks have widescreen format on one side and standard TV format on the other. This is usually, but not always, noted on the DVD holder.

Copied movies won't play. Ripping a DVD from the disc to your Desktop may seem like a good idea for faster playback with fewer interruptions. But most players won't work with ripped DVD copies, mainly because they usually check the DVD disc for region or copy protection information before playing.

■ **Make Your Own Movie.** Tired of watching the latest Hollywood clunkers? Think you have what it takes to be the next famous director or producer? Perhaps you should try making your own movies.

What you need. You'll need a DVD recorder, authoring software, and burning

software. DVD recorders are available in several competing formats and may be included with a computer system as an internal drive or purchased separately as an external device. If you intend to view the finished DVD on a consumer home DVD player, make sure the recorder supports DVD-R (DVD-recordable) format. This format is compatible with most (about 85%) currently available home DVD players. Other formats used by some consumer players include DVD-RW (DVD-rewriteable), DVD+RW (DVD plus rewriteable), and DVD+R (DVD plus recordable). The two RW formats (DVD-RW and DVD+RW) offer the ability to reuse a DVD disc by erasing and writing to it multiple times.


DVD ROM SAX Properties
General
Properties
DVD Region
Volumes
Drives
Most DVDs are encoded for play in specific regions. To play a regionalized DVD on your computer, you must set your DVD drive to play discs from that region by selecting a geographic area from the following list.
CAUTION: You can change the region a limited number of times. After Changes remaining reaches zero, you cannot change the region even if you reinstall Windows or move your DVD drive to a different computer.
Changes remaining: 4
To change the current region, select a geographic area, and then click OK.
United Kingdom
Utah
Uzbekistan
Vanuatu
Vatican City
Venezuela
Current Region:
Region 1
New Region:
Region 1
OK
Cancel

Be sure to set your region code before inserting the first DVD disc; you may not get a second chance.

The authoring software should be capable of encoding the data to the file format required by DVD (MPEG-2). If it isn't, you'll need separate MPEG (Moving Picture Experts Group) encoding software.

DVD-burning software is necessary for copying the finished files to a DVD disc. The software must support the DVD drive and disc format you plan to use.

Prepare to create a DVD. You'll need plenty of free hard drive space; 14GB for a full DVD-R project. Run the Windows defragment utility first (click Start, All Programs, Accessories, System Tools, then Disk Defragmenter) so the space is in one continuous location.

Next, reboot your computer so Windows loads as little as possible. Disable virus checkers, software-based firewalls, scheduling software, etc., and turn off screen savers and power save options while working on a DVD. The last thing you want is for your computer to go to sleep during encoding or burning.

Capturing. Content for your movie can come from a number of different sources. If you're transferring analog video using a separate video capture card, set a high capture rate because quality can't be added back after this stage. You can always reduce the bit rate when you create the final burnable MPEG file if necessary. If you're transferring material from VHS or video cameras, clean the tape heads first. Slides and pictures can be transferred to your computer using a scanner. When possible, use FireWire for transferring from digital video sources for faster throughput. If your computer isn't equipped with a FireWire port, expansion cards are readily available and easy to add.

Use the same resolution for all material that will be used on the same DVD; the standard is 720 x 576. Some inexpensive video capture cards aren't able to meet this requirement. If yours can't, set it as high as possible. Don't preview material as you're recording it unless you have a high-end computer. The preview function can force the recorder to drop the bit rate.

DVD authoring software isn't the place for making corrections to still images. Use a good image-editing program instead. Save the final images in TIFF (Tagged Image File Format), JPEG (Joint Photographic Experts Group), or native Photoshop format, because these are the most common file types authoring software imports.

Authoring. Navigation buttons are a small but important part of your production. The buttons are highlighted when a view selects them, so the background should be darker than the button. Otherwise, the highlighting may not be easily viewable. Also, don't place the navigation buttons near the edges of the screen; some televisions cut off the edges, including the buttons.

Allow plenty of time to complete your movie. Encoding alone can easily take many hours, depending on the size of your project. Before you burn the DVD, use a DVD player to view and check the encoded files. Some DVD players can't work with these raw files. In most cases, both WinDVD and PowerDVD can use them, although some features may not be available.

Burning. Choose the right format. DVD-R is currently the most compatible format for consumer DVD players. The various DVD-RW formats are fine for testing, but for the final cut, stick with DVD-R for optimum compatibility.

When recording in DVD-R format, let the burning software create a disc image (an image of what the final DVD will look like, stored on your hard drive) first. This lets the software perform the heavy computational work before writing to the DVD, reducing the possibility of errors due to delays in data transfer. DVD-R blanks are too expensive to lose to an error in the burning process.

■ **Lights, Camera, Action!** DVD-equipped systems open up a new chapter in multimedia computing. With the advent of DVD-R drives, the emphasis is moving away from watching high-resolution videos to creating your own. The computer is slowly being turned into a multimedia control center, with players that can produce a full home theater environment, at well below the cost of consumer products. You can sit back and enjoy the view as a passive spectator or take the reins and become a producer, director, or even a star of your own movie. LS

by Tom Nelson and Mary O'Connor

Get The Big Picture

If you want to dabble in creating your own movies, you don't have to pay an arm and a leg. Several third-party DVD authoring programs are available for less than $100, with enough features to turn home movies into family classics. Some authoring programs can also burn to DVD or CD. Two to consider are:

Ulead Systems' DVD MovieFactory ($49.95; free trial available; http://www.ulead.com) uses wizards to step you through the process of creating a movie.

Sonic Solutions' MyDVD Plus 3.5 ($79; http://www.sonic.com) lets you record movies to your computer's hard drive, edit them, and then burn them to CD. With MyDVD Suite ($99.99), you can pump up your movies with special effects.

Keep It In Line

Troubleshooting Tips For Smooth Sailing With WinXP

By the time Windows XP hit store shelves in October 2001, Microsoft had already announced that numerous updates were needed to run WinXP successfully. At that time, 18MB worth of WinXP updates were available. Now, as WinXP nears its first anniversary, there are approximately 23.2MB worth of critical updates and service packs and 41.5MB worth of recommended updates (non-critical updates that Microsoft recommends for specific purposes, such as burning CDs or using Windows Movie Maker).

Despite its easy-to-use interface and some great new features, WinXP clearly isn't perfect. To help you deal with some of the frustrations that can arise while using WinXP, we assembled solutions to some common (and a few not-so-common) problems.

If we caught you before you developed a WinXP-related headache, set the aspirin aside for now and let's see if we can help. All these tips will work for WinXP Home Edition and WinXP Professional.

(NOTE: Some of the troubleshooting tips provided in this section require that you modify the Windows Registry. Incorrectly modifying the Registry can have adverse effects on your system, sometimes causing a complete inability to boot the system. Always back up the Registry before making any modifications to it. For more information, see "Protect Yourself" on page 32.)

1 You messed things up beyond repair (or so you think), but you have yet to phone the doctor for tranquilizers. Here is the most basic, but perhaps the most helpful, WinXP troubleshooting tip in existence.

Problem: The problem here might be too hazy to pin down. Maybe you installed a new program or uninstalled a program that came with your computer. Then you restarted the computer and now WinXP seems to have lost some functionality (for example, your Internet connection no longer works). Or perhaps you made a gutsy move and made some modifications to the Registry that didn't produce the intended results. Regardless of the problem, as long as your computer worked awhile ago, whether it worked correctly yesterday or last month, you can use this tip. However, before you do, look at the "The One-Stop Assistance Center" sidebar and the other tips in this article to see whether a more direct fix for your specific problem is readily available.

Solution: Use the System Restore feature to restore your computer's settings to a point in time when everything worked like it's supposed to. Click Help And Support from the Start menu to open its window. For most users, this window will appear on-screen as the Help And Support Center; for those using a newer computer that came with WinXP installed (such as those sold by Dell or Hewlett-Packard), this window's name and appearance might be modified. In either case, there should be a System Restore or Undo Changes To Your Computer With System Restore link (if not, type system restore in the Search field, press ENTER, and find a similar link in the Search Results that display).

Click the appropriate System Restore link, select the Restore My Computer To An Earlier Time radio button, and click Next. The Select A Restore Point screen appears and includes a calendar for the current month. On the calendar, click the most recent date on which you know your computer worked correctly (you might have to click the arrow buttons on either side of the month name to find the correct date), select a restore point from the list that appears (there may only be one restore point for the date you chose), and click Next.

When the Confirm Restore Point Selection screen appears, click Next and wait for WinXP to restore your system. This usually takes at least two or three minutes, and during the process, WinXP will restart your system. For more details about the System Restore feature, including how to set a restore point for your computer, see "Find, Install, & Use Backup & Restore" on page 54.

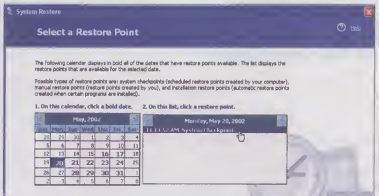
2 You upgraded your computer from Windows 9x or Windows Me to WinXP. Then, either immediately after upgrading or after running WinXP successfully for some time, your computer crashed.

Problem: Windows 2000 and WinXP are based on the Windows NT kernel (core part of an OS [operating system]) while Win9x and WinMe are based on the Win9x kernel. Because of this, there are some problems inherent in upgrading from Win9x/Me to WinXP that you wouldn't encounter when upgrading to WinXP from WinNT/2000.

Solution: If possible, uninstall WinXP and return to your previous OS. (For more information, see "Uninstalling Windows XP" at http://www.smartcomputing.com/xptips/uninstall.) If you're able to return to your previous OS and still want to upgrade to WinXP,

back up your files on removable media (such as floppy diskette, CD-R [CD-recordable], or Zip disk) and, rather than trying to upgrade again, install WinXP from scratch. This will erase data from your hard drive, which is why backing up your files is extremely important.

If you're not able to return to your previous OS, you will probably have to install the previous OS or WinXP from scratch. If there are files you need that you didn't back up prior to the crash, consult the manual that came with your computer, call the computer manufacturer's technical support line, or consult a company that specializes in data recovery to rescue any important, inaccessible files.


System Restore
Select a Restore Point
The following calendar displays in bold all of the dates that have restore points available. The list displays the restore points that are available for the selected date.
Possible types of restore points are: system checkpoints (scheduled restore points created by your computer), manual restore points (restore points created by you), and installation restore points (automatic restore points created when certain programs are installed).
1. On this calendar, click a bold date.
2. On this list, click a restore point.
May, 2002
Monday, May 20, 2002
11:11:57 AM System Checkpoint
< Back
Next >
Cancel

The System Restore feature can be your best friend because it lets you return your computer to a state in which it was working properly.

3 You are trying to upgrade an older computer to run WinXP, but WinXP won't install successfully.

Problem: Your computer might have hardware installed that is not compatible with WinXP. Sometimes this means you've hit a temporary dead end, but more often than not, either Microsoft or the hardware manufacturer will have a patch or device driver you can download (or, if this affected your Internet connection, ask for the patch or driver on a floppy diskette or CD-ROM) to solve the problem.

Solution: Determine whether the hardware is WinXP-compatible by consulting the Microsoft Windows HCL (Hardware Compatibility List). Go to the Windows HCL Web page at http://www.microsoft.com/hcl and follow the on-screen instructions to find information about the hardware in question. The Windows HCL should direct you to a patch or device driver that will fix the problem.

If the hardware isn't listed as being WinXP-compatible, don't worry yet; this simply means that Microsoft's WHQL (Windows Hardware Quality Labs) hasn't tested the hardware yet for WinXP compatibility. In this case, contact the hardware manufacturer for assistance. If you can't connect to the Internet, use a different computer to visit the Windows HCL Web page or call the hardware manufacturer directly. Once you resolve any hardware compatibility issues, you should be able to install WinXP.

4 You successfully upgraded an older computer to run WinXP, but WinXP won't recognize one or more installed hardware components.

Problem: This problem is similar to what we described in the previous troubleshooting tip, except in this case, you were able to successfully install WinXP.

Solution: After you follow the advice we provided for the previous tip, WinXP might automatically find the hardware. If so, the Found New Hardware bubble alert will appear above the Taskbar, and the hardware should be ready to use. If not, try restarting the computer. If WinXP still does not automatically find the hardware, you will need to use the Add Hardware Wizard. Click Start, Control Panel, Printers And Other Hardware, and Add Hardware (in the left column). Follow the wizard's instructions to install the component.

5 You are attempting to install WinXP, but you encounter an error indicating that there is insufficient disk space to completely install the OS.

Problem: There is either not enough space on the hard drive to install WinXP, or there is not enough space on the hard drive partition on which you chose to install WinXP.

Solution: WinXP requires at least 1.5GB of hard drive space to run. If you have a single hard drive and its capacity isn't ample enough to install and sustain WinXP, you will have to install a larger capacity hard drive. You also should review all of the WinXP system requirements and determine whether it's even feasible to run WinXP on your computer.

If you have a second, larger capacity hard drive installed on your computer, or if you have a different hard drive partition that has

The One-Stop Assistance Center

When you run into problems using Windows XP, the most straightforward approach to solving them is to head for the Help And Support Center. To do this, click Help And Support from the Start menu. There is little mystery to using the Help And Support Center. In the Search field, simply type a keyword or two that denotes the problem you're having and press ENTER. Scroll through the Search Results to identify the best possible answers to your question, and click the result you want to see. If you find a certain topic especially useful and want to use it again in the future, click Add To Favorites so you can access it right away the next time you open the Help And Support Center.

WinXP has a number of troubleshooters that let you solve a problem quickly, including the Sound Troubleshooter, Games And Multimedia Troubleshooter, DVD Troubleshooter, Home And Small Office Networking Troubleshooter, Internet Connection Sharing Troubleshooter, Modem Troubleshooter, and Outlook Express Troubleshooter. Generally, troubleshooters appear automatically when you're having a related problem. To cut to the chase and access a troubleshooter directly, open the Help And Support Center, type **troubleshooter** in the Search field, press ENTER, and select the correct one.

enough space to install WinXP, begin the installation process again and designate the appropriate hard drive or partition.

6 You purchased a new computer loaded with WinXP. Although it works properly most of the time, it occasionally hangs.

Problem: You can **multitask** (run multiple programs simultaneously) to your heart's delight with WinXP, but you might be running one too many programs that are especially taxing to your computer's processor. For example, downloading large files, editing graphics and video, and CD burning are taxing; typing in a Word document and surfing the Web are not. Another possibility is that your computer didn't come with all the most recent WinXP **Windows Updates** (Microsoft's term for patches), and as a result, at least one program isn't running correctly.

Solution: If you're running processor-intensive programs, exit the programs and restart WinXP. Before using a taxing program again, keep in mind that you shouldn't run other programs simultaneously. If you suspect that a Windows Update is in order, connect to the Internet and click Start, All Programs, and Windows Update. This brings you to Microsoft's Windows Update site. For more information, see "Use Windows Updates To Stay Up-To-Date" at http://www.smartcomputing.com/xptips/updates.

7 You upgraded your computer to run WinXP and noticed that some Control Panel icons are now missing.

Problem: This happens when certain Registry settings specific to the prior OS are not changed correctly during the upgrade process to WinXP.

Solution: Force the Registry to load the earlier settings, which should restore the missing Control Panel icons. But first, as we mentioned previously, you should back up the Registry before modifying any of its settings.

Now, on with the tip: Click Run from the Start menu, type **regedit**, and click OK. In the Registry Editor window, double-click the HKEY_CURRENT_USER folder, double-click the Control Panel folder, locate and right-click the Don't Load folder, select Delete, and close the Registry Editor window. Now you should be able to find the icons you know and love in the Control Panel.

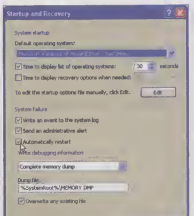
8 You start your computer and find that the WinXP Welcome screen does not display any user-names.

Problem: Somehow, all the user accounts have been deleted. Normally you would click Start, Control Panel, and User Accounts to add, delete, or modify user accounts. But when you take this route, WinXP doesn't usually permit you to delete every account (if you upgraded to WinXP or use a different account management program, it is possible to delete every user account).

Solution: From the Start menu, click Turn Off Computer and Restart. As your computer restarts, press and hold down the F8 key (if you hear a continuous beep, stop pressing F8). (*NOTE: Instead of pressing F8, some computers might require that you press a different key or combination of keys. Check the documentation that came with your computer to see if there is a different procedure for restarting your computer in Safe Mode.*)

On the Windows Advanced Options Menu screen, select the Safe Mode option (if it's not highlighted by default, you may need to use the Up or Down arrow key to highlight it) and press ENTER. This restarts your computer in Safe Mode.

When the Welcome screen appears, click the option to log in as Administrator, and if the Desktop dialog box displays, click Yes. Click Start, Control Panel, User Accounts, and Create A New Account. After you establish a new account, restart your computer. The new account should now appear on the Welcome screen.



Modify the Startup And Recovery settings to prevent your computer from automatically restarting when it encounters a system failure.

9 You used the Accessibility Wizard to modify some settings, and now the display does not appear the way you want.

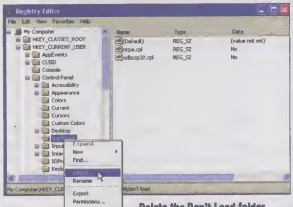
Problem: The Accessibility Wizard lets you modify display settings such as menu and font sizes. However, if you make a change using the Accessibility Wizard and then decide to click the Back button or otherwise not apply the change, sometimes the Accessibility Wizard makes the change effective anyway.

Solution: Click Start, Control Panel, Appearance And Themes, and the Display icon. Below the Themes tab, open the Themes drop-down menu and select Windows XP (or, if you previously created settings that you know you'll like, select the name you assigned to those settings). Click Apply and OK. If necessary, run the Accessibility Wizard again to modify the display settings the way you intended.

10 When a system failure occurs, your computer suddenly re-starts without your prompting it to do so.

Problem: By default, WinXP automatically restarts when it encounters a system failure. This is only a problem if you would like to control when your computer restarts.

Solution: Click Start, Control Panel, Performance And Maintenance, and the System icon. In the System Properties dialog box, choose the Advanced tab, and click the Settings button in the Startup And Recovery section. In the System Failure section of the tab, deselect the Automatically Restart checkbox, and click OK. Click OK again to close the System Properties dialog box. The new



Delete the Don't Load folder in the Windows Registry (via HKEY_CURRENT_USER\CONTROL PANEL) to restore old Control Panel icons after upgrading to Windows XP.

settings take effect immediately.

11 Even though you clicked the Remember Password checkbox associated with opening your email client, the email client is *not* automatically remembering your password.

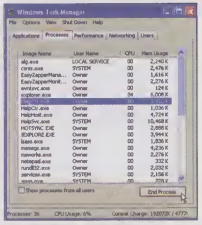
Problem: A permissions issue is most likely preventing your email client from remembering your password. This happens with Outlook and Outlook Express, but can also occur with other email clients.

Solution: Our solution involves editing the Registry, so back it up first. Then, click Run from the Start menu, type regedit, and click OK. In the Registry Editor window, double-click the following folders (and in this order): HKEY_CURRENT_USER, Software, and Microsoft. Right-click the Protected Storage System Provider folder and select Permissions.

On the Security tab, click the Advanced button to open another dialog box. Here, choose the Permissions tab, select the checkbox next to Replace Permission Entries On All Child Objects With Entries Shown Here That Apply To Child Objects, and click Apply. In the Security message box that appears, click Yes. The appropriate user in the Name column should now have Full Control listed next to it in the Permission column. Click OK. A confirmation message box appears with the question, "Do You Want To Replace The Permissions On All Existing Subkeys Within Protected Storage System Provider?" Click Yes.

Exit the Registry Editor window and restart your computer. Run your email client and, when prompted, type your password, select the Remember Password checkbox, and click OK. The email client should now automatically remember your password.

12 You tried to use WinXP's drag-and-drop CD-burning feature in Windows Explorer, but you received an error message and were unable to burn a CD.


Windows Task Manager
File Options View Shut Down Help
Applications Processes Performance Networking Users
Image Name User Name CPU Mem Usage
alg.exe LOCAL SERVICE 00 2,240 K
csrss.exe SYSTEM 00 2,476 K
EasyZapperMana... Owner 00 1,616 K
EasyZapperMonit... Owner 00 2,276 K
explorer.exe Owner 00 120 K
explorer.exe Owner 04 6,008 K
HelpCtr.exe Owner 00 1,036 K
HelpHost.exe Owner 00 4,704 K
HelpSvc.exe SYSTEM 00 10,468 K
HOTSYNC.EXE Owner 00 2,896 K
IEXPLORE.EXE Owner 00 3,944 K
lsass.exe SYSTEM 00 1,836 K
msmsgs.exe Owner 00 4,236 K
mwave3a.exe Owner 00 2,276 K
notepad.exe Owner 00 332 K
rundll32.exe Owner 00 2,052 K
services.exe SYSTEM 00 2,156 K
smss.exe SYSTEM 00 376 K
Show processes from all users
End Process
Processes: 36 CPU Usage: 6% Commit Charge: 192072K / 497728

Using the Windows Task Manager, you can stop multiple instances of the HelpCtr.exe program from running when you are unable to access the Windows XP Help And Support Center.

Problem: There are a number of known issues associated with using WinXP to burn CDs, using either the feature built into WinXP or third-party software such as Roxio's Easy CD Creator.

Solution: Fortunately, Microsoft worked these problems out rather quickly and made the fixes available as Windows Updates. Initially Microsoft released an Update For CD Burners, but that update has since been included in a larger update. To ensure that you have all the most recent Windows Updates, use the information provided in "Use Windows Updates To Stay Up-To-Date" at http://www.smartcomputing.com/xptips/updates.

13 Sometimes when you shut down or restart your computer, the system hangs.

Problem: This issue is actually related to the problem in the previous troubleshooting tip. Due to problems between WinXP and certain CD-burning software, you might see a blank screen (and possibly an inactive cursor) when you shut down WinXP, or you may restart your computer and notice that WinXP won't respond to input from your keyboard or mouse.

Solution: If possible, completely shut down your computer. If you tried to shut it down and the system hangs, wait at least 10 minutes to see if it will shut down by itself. If you can't shut it down using normal means, turn off the power (or if that doesn't work, unplug the computer), wait a few seconds, and turn the power back on. Once you are able to start the computer, follow the solution we provided in the previous tip.

14 You tried to use the Help And Support Center, but it doesn't seem to work.

Problem: Actually, there are two applications that run the Help And Support Center: HelpCtr.exe and HelpSvc.exe (for the Microsoft Help Center Service). Sometimes Helpctr.exe can run in more than one instance, which prevents you from opening the Help And Support Center window.

Solution: Press CTRL-ALT-DELETE to open the Windows Task Manager. Click the Processes tab and Image Name (column heading) to list the processes in alphabetical order. Find HelpCtr.exe, click to select it, and click the End Process button. Repeat this until you eliminate all instances of HelpCtr.exe from the list. Exit the Windows Task Manager and open the Help And Support Center as you would normally. For more information, see the "The One-Stop Assistance Center" sidebar.

15 You want to know why an error occurred.

Problem: WinXP encountered an error, warning, or system failure, and you want to find out why a particular error occurred.

Solution: Click Start, Control Panel, Performance And Maintenance, and the Administrative Tools icon. Double-click the Event Viewer icon. In the left pane of the Event Viewer window, click System. Errors, warnings, and information bulletins now appear in the right pane of the Event Viewer window. By default, the list displays in chronological order, with the event that occurred most recently at the top of the list. You can sort the items to suit your needs by clicking the column heading (for example, to sort by type, click the word Type at the top of that column).

Find and double-click the appropriate event to display the Event Properties dialog box, which includes detailed information about that event. When you finish, click OK and exit the Event Viewer.

■ **More Help Is On The Way.** If our troubleshooting tips and the WinXP Help And Support Center didn't solve your specific problem, try searching for an answer via the Welcome To Microsoft Help And Support Web page at http://support.microsoft.com. Also, keep a lookout for a WinXP service pack, which Microsoft recently announced might be available as early as August. Early reports indicate the service pack may come in the form of a 40MB Windows Update that will let users more easily replace Microsoft's Internet Explorer, Outlook Express, and Windows Messenger programs with non-Microsoft browser, email, and instant messaging programs. With any luck, the service pack will reduce the number of troubleshooting tips you'll need to use WinXP effectively. LS

by Cal Clinchard

One-Stop Answer Shop

Microsoft's Knowledge Base Gets To The Bottom Of The Problem

With more than 250,000 articles covering products that range from Access (Microsoft's database-building tool) to Zone.com (the Microsoft Network's game site), the Microsoft Knowledge Base is one of the world's most comprehensive technical resources for Microsoft products. The Knowledge Base (at http://support.microsoft.com) can be a powerful resource for those who know how to use it. Its archive has been developed over a number of years by thousands of support professionals working with Microsoft customers and is constantly being refined and updated.

According to Microsoft representatives, company support personnel also use the Knowledge Base article database to solve problems, and for many years it has been a primary resource for IT professionals and others with advanced knowledge of computing issues. It is also popular with technical consultants and salespeople, small business owners, and consumers. In this article, we will explore the scope and usage of the Knowledge Base and discuss the best methods to harness its power.

■ **One Size Fits All.** Because of the Knowledge Base's multiuse nature, Microsoft has attempted to strike a balance between technical complexity and user-friendliness. Despite this effort, the Knowledge Base has historically been a confusing and often frustrating resource for the uninitiated. In an attempt to enhance its appeal, Microsoft recently redesigned the Knowledge Base search interface completely. This redesign makes the Knowledge Base easier for new visitors to use, but renders it unfamiliar to those who have used the Knowledge Base before.

For consumers, accessibility translates into numerous references and Web links within the articles that lead the reader elsewhere for further information and definition. Furthermore, Microsoft has retagged its more consumer-oriented articles to make it easier for nontechnical users to locate the information they need. For instance, in an article relating to a problem with the **print spooler** (a program that manages the flow of printing jobs), Microsoft might retag the article to associate it with user-friendlier keywords such as "file won't print." Microsoft has also formalized the structure of articles relating to consumer-intensive issues, placing three helpful sections—symptoms, causes, and resolutions—at the start of each article.

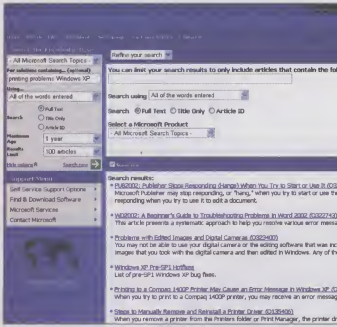
■ **A New Act Debuts.** One of the major changes to the Knowledge Base is the new location and appearance of its search interface, which makes the Knowledge Base easier to find and use. The Knowledge Base now has a permanent position on the left side of the main support site (it was previously accessed via a link within the site). Additionally, the query window, which was replaced by its own results and whatever article the user chose to view, now stays in position on the left. Results appear on the right side of the support interface, and opened articles appear in a separate window.

When you visit the site, you are presented with a variety of options. Where once you were required to select the Microsoft product about which you were querying, you can now choose a product or search the entire library of Microsoft topics. Where once you were asked to enter keywords related to your problem, you can now leave the main query dialog box, titled For Solutions Containing, blank, as well. (Leaving both the topic and the main query boxes blank will result in all Knowledge Base articles being returned, up to the specified number of results.)

Just beneath the main query dialog box is an expansion link, Show Options. Click this link to configure the Knowledge Base search engine to your liking. The first dialog box in this section lets you search by All Of The Words Entered, Any Of The Words Entered, The Exact Phrase Entered, or Boolean search.

Beneath this dialog box, you can further refine your search by selecting Full Text (all the words in an article, including the title), Title Only (the name Microsoft has assigned the article), or Article ID (the seven-digit reference number [or "Q number"] Microsoft has assigned the article). You can also restrict the search by date (Maximum Age) and the number of returned results.

■ **The Search For Success.** The results you obtain from the Knowledge Base vary widely depending on the criteria you select. Work with these criteria until you find the specifications that best suit your needs. If your computer accepts cookies, the criteria you select will be saved until your next visit.


Microsoft
Refine your search
You can limit your search results to only include articles that contain the following search words:
Search using: All of the words entered
Search: Full Text Title Only Article ID
Select a Microsoft Product
All Microsoft Search Topics
Search within results
Search results:
Support Home
Self Service Support Options
Find & Download Software
Microsoft Services
Contact Microsoft

Users who click the Show Options link on Microsoft's Support page can customize their search by word combination, type of search, timeframe, and number of results.

Topic vs. dialog box. If you choose the topic Windows XP and type **Publisher crashes** in the main search dialog box, the articles returned will be those relating to Windows XP problems that also contain any, all, or exactly (depending on the criteria selected) the words "Publisher crashes." If instead you opt for the default All Microsoft Search Topics from the topics menu and type **Publisher crashes Windows XP** as your search string, the articles returned will be all those containing these words, no matter what product they relate to.

Any vs. All, Exactly, or Boolean. As with other search engines, Any Of The Words will return the most liberal range of results because it will retrieve articles containing any of the words in the search string. Exact Phrase will result in the most restrictive search and is not a recommended option unless the phrase is very short and specific. For more general problems, start with All Of The Words and move to Any Of The Words if the results are not broad enough.

Boolean searches are those that use connective words, called Boolean expressions, to link search terms together. The most common Boolean expressions, and the only ones the Knowledge Base search engine supports, are AND, OR, and NOT (other search engines support a much wider range of search terms). Placing an AND between every two words in a search string has the same effect as choosing All Of The Words. Placing an OR between every two words in a search string has the same effect as choosing Any Of The Words. Using NOT between two words instructs the search engine to look for the first term, but to exclude any article that contains the second. If you use Boolean expressions, be sure to select that option in your search criteria.

Like many of its peers, the search engine incorporated into the Knowledge Base lets you use parentheses to combine Boolean search strings into phrases just as if they were math problems (which they are, to the search engine). In math, 7 + 5 - 6 + 5 equals 11, while 7 + 5 - (6 + 5) equals 1. In the Knowledge Base, the search term "Windows XP AND Freezes OR Shutdown" would return all articles that relate either to both WinXP and freezes or to shutdown. The search term "Windows XP AND (Freezes OR Shutdown)," however, would return all articles that relate to Windows XP and either freezes or shutdown When used in conjunction with NOT, these expressions can be very effective. For example, "Windows XP AND Freezes NOT (Startup OR Shutdown)" would target articles relating to freezes in WinXP that do not occur during startup or shutdown.

Full Text vs. Title Only or Article ID. Performing a full-text search will return the broadest range of results. If you are seeking a certain article and have its Q number (Q301380, for example) or title, locate the article more quickly by searching by Article ID (Q number) or Title Only. When you search by Article ID, provide the exact Q number, and the search engine will return a link to that article only. When you search by Title Only, provide the full title of an article if you have it, or just a portion of the title if you do not. As long as there is enough information for the search engine to identify the article, a link will be returned.

If you have the specific Q number or title of an article and want further information on the topic of the article, perform a Full Text search using the Q number. (If you have the title but not the Q number, search by Title Only; the Q number will be at the end of the title). Performing a Full Text search using a Q number will return all articles that reference the designated Q number in the body of the text.

Maximum age options. Choosing a maximum age (the default is anytime) will restrict your search to more recent articles. Unless you are working with recent programs and are having difficulty finding the information you need, it is safer to use the default setting. Information relating to a problem is often much older than the average user would guess.

■ **A Permanent Partner.** As a user of WinXP, you enjoy a special connection to the Knowledge Base: Microsoft has linked it to the WinXP Help utility. If you are online when you perform a Help search using the dialog box in the main WinXP Help screen, the results that are returned will include not only information stored in WinXP on your computer, but also any relevant results from the Knowledge Base. WinXP users can establish a limited number of criteria for their Knowledge Base search by making modifications under Set Search Options. There is no way to access the Knowledge Base directly from the WinXP Help utility, but you can set the Search Options so that only Knowledge Base articles are returned as search results.

■ **Knowledge Is Power.** The Knowledge Base is a popular resource for good reason. It offers an enormous archive of information on and assistance relating to Microsoft's extensive product line. Take the time to understand how it works, and you'll find yourself visiting often, straightening out small but annoying problems before they multiply into large and impenetrable ones. LS

by Jennifer Farwell

Our Picks To Click

Web Sites About Windows XP

A Google (http://www.google.com) search using the keywords "Windows XP Tips" results in literally thousands of sites devoted to this topic, so it's not as if there's a shortage of information. But how do you know which of these sites are most useful? Well, as a starting point, here are some of our favorites.

Active Networks' ActiveWin.com (http://www.activewin.com) is superb, offering one-stop shopping for all of your WinXP-related needs. It presents solid, well-researched information, as well as news, tips, and reviews. It also includes a popular and diverse set of forums, with subjects ranging from general WinXP information to bug reports to FAQs (frequently asked questions). With almost 8,000 members exchanging questions, answers, and comments, you can be pretty sure that if you have a problem or question, someone at ActiveWin.com has covered it before.

Microsoft gets bashed for a lot of things, often deservedly so. But one of the things it happens to be quite good at is documentation. It's also very good at making much of that documentation available to developers and users. Microsoft's Windows XP Technical Article Index (http://www.microsoft.com/windowsxp/pro/techinfo/articleindex.asp) is a good example of this. Divided into sections (Compatibility, Networking, Hardware Support, Overviews, etc.), this site is a gold mine of information free for the taking. The articles themselves are further divided into "For The Average User" and "For The IT Professional" sections, making them even more useful and understandable.

Along the lines of the Windows XP Technical Article Index, we'd be remiss if we didn't remind readers that Microsoft's excellent (and occasionally self-serving) Knowledge Base (http://support.microsoft.com) is an excellent resource for articles on any Microsoft-related subject, including WinXP. A casual check reveals more than 100 WinXP-related articles. And don't forget to visit Microsoft's Windows XP Tips site (http://www.microsoft.com/windowsxp/expertzone/tips) for advice and tips submitted by users. It also includes a list of other tips sites.

For a substantial list of WinXP tweaks presented in an understandable manner, check out the Troubleshooting Windows XP site (http://www.kellys-korner-xp.com/xp.htm). It's nicely done and easy to navigate, with section headers that serve as live links to lists of tips and articles. You also can use the site's search engine to track down specific information.

Doug Knox's Tips for Windows XP site (http://www.dougknox.com/xp/xp_tips.html) is a great compilation of tips and info, some of which are actually links to Microsoft Knowledge Base articles. (Hey, if MS has already covered it and done a good job, why reinvent the wheel, right?) This site doesn't contain that many tips, but the most interesting thing about it is that it provides utility-oriented VBScript files that you can download for free. (For example, one such script sets up unattended Restore Point Creation as a Scheduled Task.)

The XPTuneup site (http://www.xptuneup.com/xptuneup_listview.htm) lists more than 100 useful WinXP tips, ranging from how to speed up the Start menu to how to figure out why NetMeeting won't run.

OK, so TweakXP.com (http://www.tweakxp.com) forces irritating pop-up ads on you . . . but it's still a cool site. We found it well-organized and helpful, with hundreds of tips ranging from usability to system performance.

The Windows-Help.NET site (http://www.windows-help.net/WindowsXP/all-tips.html) provides some excellent tips and WinXP-related advice, divided into useful sections such as How-To, Customizing, and Troubleshooting.

Annoyances.org (http://www.annoyances.org) is full of useful information about Windows in general and WinXP in particular. The site is nicely organized, with a helpful search engine and numerous tips, tweaks, and news items. In addition, Annoyances.org provides a robust discussion forum and an online glossary.

Microsoft does a decent job of reporting most problems and provides its Windows Hardware Compatibility List (http://www.microsoft.com/hcl) to explain and try to resolve compatibility issues. On the other hand, the Windows XP Software Compatibility Site (http://www.myshipmates.net/xpsc) maintains a user-driven database of compatibility issues, comments, and resolutions. You can go there to see what problems other users report (and how they solved their problems), or you can add your own comments.

Cramsession.com (http://infocenter.cramsession.com/techlibrary) maintains a database of helpful WinXP (and other) tips. Currently, the number of tips online is relatively small, but users can add their own, thus increasing the usefulness of the database. On the plus side, the articles are very well-written, unlike some of the content we've seen on similar sites.

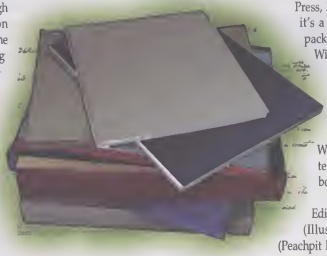
When seeking WinXP information, don't limit yourself to just the typical Web sites. Several users groups and discussion forums are out there. One of the biggest is the collection of 479 forums that comprise the MSN Windows XP Groups listing. This meta-forum (http://groups.msn.com) hosts an amazing variety of WinXP-related discussion groups.

■ **For More Information.** This is only a sampling of our favorite WinXP-related sites, but it should be enough to get you started. If you're also interested in WinXP-related books, see "From The Read-Only File" on page 140. LS

From The Read-Only File

Books About Windows XP

Windows XP is not perfect. Although it may be an improvement on Windows 98 (and especially on the ill-fated Windows Me), the new OS (operating system) still has its own quirks and shortcomings. Even so, WinXP is almost infinitely customizable, particularly if you're willing to dig a little deeper than most. The following list of books will help you in that regard; they contain our writers' and editors' favorite WinXP tips and techniques, and they're a great place to start your search for that ultimate tweak.



"Windows XP Home Edition: The Missing Manual," by David Pogue (Pogue Press/O'Reilly & Associates, ISBN: 0596002602, $24.95). Part of Pogue's excellent and popular "Missing Manual" series, this book is not only informative, but it's also a fun read. It includes chapters on everything from file management to setting up a network. We found it definitely worthwhile.

"Windows XP Tips & Techniques," by Walter J. Glenn and Rowena White (Osborne McGraw-Hill, ISBN: 0072223340, $39.99). Helpfully organized by sections (Installation, Basics, Networking, Internet, etc.), this is a straightforward compilation of tips and tweaks that covers a wide range of WinXP topics. And its content ranges from sheer novice to intermediate user.

"Microsoft Windows XP Unleashed," by Terry W. Ogletree, Rima Regas, and Walter J. Glenn (Sams, ISBN: 0672322803, $49.99). At a hefty 1,000 pages, this book covers just about every WinXP topic imaginable, and it does so in a concise, clear-cut fashion. Even so, this book does get a little technical, so it may not be suited for beginners.

"Windows XP in a Nutshell," by David A. Karp, Tim O'Reilly, and Troy Mott (O'Reilly & Associates, ISBN: 0596002491, $29.95). The "Nutshell" series is popular and widely respected for its accuracy, depth of coverage, and straightforward approach. As an excellent reference, it's aimed largely at intermediate-to-expert users.

"Peter Norton's Complete Guide to Windows XP," by Peter Norton and John Paul Mueller (Sams, ISBN: 0672322919, $44.99). Like all of Norton's OS guides, this one is full of useful information. However, this book is definitely more involved than some texts that concentrate on how to accomplish basic OS-related tasks. Instead, Norton and Mueller dig a bit deeper, explaining how the system actually operates, rather than simply telling you how to manipulate it. The result is a much deeper understanding of the OS.

"Windows XP Headaches: How to Fix Common (and Not So Common) Problems in a Hurry," by Curt Simmons (Osborne McGraw-Hill, ISBN: 0072224614, $24.99). This book serves as a great troubleshooting resource and includes several precise sections (Interface, Files and Folders, Peripherals, etc.), each of which contains a large number of very specific problems. Some examples include: "Windows XP Keeps Putting Stuff on the Start Menu Without My Permission," "I Can't Create a New Folder," "My Computer's Hard Drive is Running Out of Space," "I Can't Get My Network Set Up," etc. For each problem, Simmons presents a series of helpful and understandable steps toward a resolution.

"The XP Files: Windows' Hidden Tools for Secure Sharing, Communication, and Collaboration," by Guy Hart-Davis (Osborne McGraw-Hill, ISBN: 0072224010, $24.99). If you're specifically seeking WinXP tools and tweaks related to communication, this is the book for you. From NetMeeting to Windows Messenger, and from Outlook Express to HyperTerminal, Hart-Davis picks apart the OS and its (often hidden) tools.

"Microsoft Windows XP Inside Out," by Ed Bott, Carl Siechert, and Craig Stinson (Microsoft Press, ISBN: 0735613826, $44.99). OK, so it's a beast: Almost 1,300 pages, each packed with info. This is *the* standard WinXP reference work, created by the people who know the most about it. The publication is easy to follow, but it tends to target intermediate and advanced users. This edition, which covers both WinXP Home and Pro, includes a full-text CD-ROM-based version of the book, complete with illustrations.

"The Little PC Book: Windows XP Edition," by Larry Magid, John Grimes (Illustrator), and Lawrence J. Magid (Peachpit Press, ISBN: 0201754703, $21.99). If you're looking for an accessible, easy-to-understand guide to WinXP, this is a must-have resource. It covers all of the basics, and it does so in a user-friendly style, using as little jargon as possible. If you're not a power user and have no desire to become one, this book will service its purpose by answering your basic questions.

"Windows XP Simplified," by Ruth Maran (John Wiley & Sons; ISBN, 0764536184, $27.99). This publication is an excellent and very understandable introduction to WinXP, especially for the novice. It's filled with great graphics and illustrations, as well as step-by-step instructions on how to perform common tasks in WinXP.

"Dan Gookin's Naked Windows XP," by Dan Gookin (Sybex, ISBN: 0782140769, $29.99). Gookin has written a zillion computer books (OK, not a zillion, but close to 100), all good, all useful, and all funny. He's on a roll, and apparently has been for more than 20 years. The best thing about this book (well, all of them, really) is that Dan just tells it like he sees it. He'll cover the good things, but he won't shy away from the problems or controversies.

■ **For More Information.** There are many great books are out there about WinXP. Although these are some of our favorite sources for tips, don't stop here. Check out our list of WinXP-related Web sites for even more tips. See "Our Picks To Click" on page 139. LS

CHECK IN FROM THE COMFORT OF YOUR VERY OWN SCHEDULE.

Print your boarding pass at nwa.com Check-In℠ from almost anywhere.
As the first major network carrier to offer Internet check-in, we've made flying easier and more convenient than ever. Visit us for details at www.nwa.com/checkin.

NORTHWEST AIRLINES.

cache—(Pronounced cash.) A bank of high-speed memory set aside for frequently accessed data. The term "caching" describes placing data in the cache. Memory caching and disk caching are the two common methods PCs use. Whenever data is accessed from or committed to main memory, a copy, along with the address, is saved in the cache with the associated main memory address. A memory cache maintains a list of frequently accessed data, complete with the address of that data. When the processor attempts to access an address, the cache checks its stores. If the memory cache holds the requested address (called a cache hit), it returns the data to the processor. If not (called a cache miss), a traditional memory access takes place. Disk caching works essentially the same way but uses conventional main memory instead of high-speed memory. Many microprocessors today have built-in memory caches, which are called primary or L1 (Level 1) caches. External cache memory also can be added, called secondary or L2 (Level 2) caches.

ClearType—Developed by Microsoft, ClearType fonts deliver characters at a higher resolution than standard fonts. Fonts are made up of several pixels that are on or off. ClearType lets portions of a pixel be on or off, thus increasing the number of pixels that compose a font. The more pixels that compose a font, the clearer the font will appear. Microsoft claims this will improve font resolution by as much as 300%. Although the technology will work with traditional CRT (cathode-ray tube) monitors, it's really designed for LCDs (liquid-crystal displays).

DOS (Disk Operating System)—(Pronounced doss.) Generally, any computer OS (operating system) that must be retrieved from a disk drive when the computer is booted. DOS manages and maintains storage media, such as disk drives, and the files stored therein. Specifically, DOS is an OS that primarily Microsoft and IBM sell. In the 1980s, IBM hired Bill Gates to create an OS for a new line of PCs. Gates and his fledgling company purchased the rights to a simple OS Seattle Computer Products manufactured. Gates used this OS as a template for the OS he would produce for IBM, which then chose to market the OS under its own name while letting this company, known as Microsoft, retain the rights to the OS' code and market the OS under its own name, as well. Soon, these new OSes, MS-DOS and PC DOS, became the most popular OSes. In 1990, Digital Research created a version of DOS known as DR-DOS. In 1993, IBM replaced PC DOS with IBM DOS.

driver—A program that lets a hardware peripheral, known as a device, communicate with a computer. Some drivers, such as those for the monitor and keyboard, usually come with the computer. Others, such as those for a CD-ROM drive or a sound card, come packaged with their corresponding device. Drivers, as well as updates for the device drivers, also can be obtained from the manufacturer of the component.

DSL (Digital Subscriber Line)—Technology that transmits digital data on regular copper phone lines. DSL can provide connections to the Internet or LANs (local-area networks). The technology differs from ISDN (Integrated Services Digital Network) lines in that it can send analog and digital signals over the phone line. ISDN is digital only and has to convert analog voice phone calls to digital signals. With DSL, the analog voice phone calls and digital signals can coexist on the same wires because analog signals require only a fraction of the capacity of the copper wires that make up a phone line. The limitation of the analog signal carried on those wires, not the wires, has kept phone lines from delivering greater data transfer speeds. Sending digital signals over copper wires breaks that barrier.

GUI (graphical user interface)—(Pronounced gooey.) A GUI uses graphical symbols, called icons, and menus to carry out commands, open files, and select options. Users operate GUIs with a mouse or a keyboard. It is designed to be easier to use than a character-based interface, which requires users to type exact commands at a prompt.

IRQ (interrupt request line)—IRQs are communications routes within a computer reserved for carrying interrupt signals, which tell the CPU to halt its current task and await further instructions. Different computer components, such as modems, keyboards, mice, sound cards, and other devices, each have a special IRQ set aside for them to use. These IRQs are prioritized according to the importance of each device, so the most important interrupt requests are handled first. A low IRQ number means an important device will be able to override other devices. For example, the system timer is usually assigned IRQ 0, while the keyboard is often IRQ 1. When a new hardware component is installed in a PC, it may try to use an IRQ setting another component is already using. This leads to an IRQ conflict, which can cause a variety of errors. To resolve an IRQ conflict, the user may have to reconfigure the IRQ settings through software or by setting jumper switches on hardware components. Plug-and-Play peripherals are supposed to eliminate IRQ conflicts, although they do not always work.

patch—A piece of code inserted into software to temporarily fix a defect. Although most users do not consider a patch a shortcut or a shabby way to fix a problem, adding too many can make a program difficult to maintain. Programmers often create patches to fix problems and add features to a program during the timeframe when users are awaiting the release of a new version of the program that already includes the patched corrections and new features.

Registry—A database that contains information about user preferences and system configuration in Windows 95 and later OSes. The Registry contains information about which devices are attached to the computer and which drivers should be used with them. It also keeps track of file associations and user preferences, such as what the monitor resolution and Desktop pattern should be. The Registry is contained in the System.data and User.data files. Changes to the Registry are generally made through the Control Panel, not by users directly editing the Registry. Extreme caution is advised when manually editing the Registry because errors can disable Windows and prevent the machine from booting.

virtual memory—A type of hard drive space that mimics actual memory (RAM). When actual memory space is limited, the use of virtual memory lets users work with larger documents and run more software at once. When a program needs information held in virtual memory addresses, the information is moved to actual memory addresses. This process of moving sets of virtual addresses (or pages) into actual memory is known as paging or swapping. When virtual memory is used, it appears to the user as if actual memory is in use. The process may be a bit slower, however, because of the time required to swap information between virtual and actual memory.

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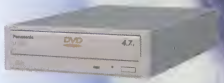

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